

ADDITIONAL MATERIALS TOWARD A MONOGRAPH OF THE GENUS
CALLICARPA. II

Harold N. Moldenke

CALLICARPA L.

Additional & emended bibliography: Decne., *Nouv. Ann. Mus. Hist. Nat. Paris* 3: 401. 1835; Sieb., *Jaarb. Konink. Nederl. Maatsch. Aarmoed. Tuinbouw* [Ann. Hort. Pays-Bas], ser. 3, 1845: 71--72, pl. 5 & 6. 1845; Miq., *Prol. Fl. Jap.* 30. 1866; Lavallée, *Arb. & Arbris.* 179. 1877; D. Thompson, *The Gardener* 1880: 518--519. 1880; Franch., *Mém. Soc. Sci. Nat. Cherbourg* 24: 240. 1882; H. O. Forbes, *Wand. Naturforsch. Malay. Arch.* 2: 226. 1886; *Gard. Illustr.* 24: 633--634. 1903; King & Gamble, *Journ. Roy. Asiat. Soc. Bengal* 74 (2), extra no., 794 & 802--808. 1908; Nakai, *Fl. Kor.* 2: 135. 1911; A. H. Graves, *Winter Key Woody Pl.* 8 & 30. 1913; Gerth van Wijk, *Dict. Plantnames* 2: 71, 132, 512, & 1534. 1916; Free, *Flowers Wint.* 41 & 200. 1917; Yabe, *Prelim. Rep. Fl. Tsingtau* 96. 1919; Nakai, *Trees & Shrubs Indig. Jap.*, ed. 2, 1: 450--464, fig. 213--219. 1927; S. Sasaki, *List Pl. Formos.* 350. 1928; Van Melle, *Journ. N. Y. Bot. Gard.* 43: 36 & 42. 1942; T. A. Rao, *Bull. Bot. Surv. Ind.* 1: 114. 1959; Nath, *Bot. Surv. So. Shan States* 144. 1960; Legris, *Trav. Sect. Scient. Inst. Franç. Pond.* 6: 184, 213, 394, 501, 513, & 558. 1963; A. D. Hawkes, *Guide Pl. Everglades Nat. Park* 43, 45--47, & 49. 1965; Moldenke, *Phytologia* 13: 401--444. 1966; Anon., *Gen. Costa Ric. Phan.* 10. 1966; Fournier, *Imp. Tree Fam. Costa Ric.* 13. 1966; Moldenke, *Résumé Suppl.* 14: 1 & 3--10. 1966.

The L., *Mant. Pl. Alt.* 198 (1771) reference given in the bibliography of this genus is sometimes cited as "L., *Mant.*, ed. 2, 198" or as "L., *Mant.* 2: 198" -- Merrill (1903) and Lam (1919) give the erroneous date "1767" for it. The "*Journ. Roy. Asiat. Soc. Bengal* 73 (3): 1012 & 1018. 1909" reference sometimes cited is an error for King & Gamble, *Mat. Fl. Malay. Penins.* 21: 1012--1018 (1909), which is a reprint from *Journ. Roy. Asiat. Soc. Bengal* 74 (2), extra no., 802--808 (1908). The Decaisne (1835) reference in the bibliography above is sometimes erroneously dated "1865", as, for instance, by Lam (1919), or cited as "5: 401. 1865."

CALLICARPA ACUMINATA H.B.K.

Additional bibliography: Moldenke, *Résumé Suppl.* 14: 5 & 7. 1966; Moldenke, *Phytologia* 13: 431--437. 1966.

CALLICARPA ACUTIDENS Schau.

Additional & emended bibliography: Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 23. 1921; Moldenke, *Phytologia* 13: 437. 1966.

Bakhuizen van den Brink (1921) places this species in the syn-

onymy of what he calls C. cuspidata Roxb. [= C. pedunculata R.Br.].

CALLICARPA ACUTIFOLIA Chang

Additional bibliography: Moldenke, *Résumé Suppl.* 14: 3. 1966; Moldenke, *Phytologia* 13: 437—438. 1966.

CALLICARPA AMERICANA L.

Additional & emended bibliography: Bocq., *Adansonia* 2: 129 (1862) and 3: 192. 1863; Bocq., *Rev. Verbenac.* 129 & 192. 1863; Gerth van Wijk, *Dict. Plantnames* 1: 217 (1911) and 2: 132 & 512. 1916; W. H. Harvey, *Univ. Ga. Agric. Ext. Serv. Bull.* 402, ed. 3, 20 & 31. 1941; F. E. Egler, *Check List Ferns & Flow. Pl. Seashore State Park* 50. 1942; Moldenke, *Known Geogr. Distrib. Verbenac.*, ed. 1, 3—7, 9—12, 16, 24, 71, 80, & 86. 1942; Moldenke, *Alph. List Invalid Names* 7, 8, 11, 24, & 27. 1942; Moldenke in Lundell, *Fl. Texas* 3 (1): 77—80. 1942; Van Dersal, *Ornament. Am. Shrubs* 50, 259, & 260. 1942; Hottes, *Book Shrubs*, ed. 4, 168. 1942; Macself, *Sanders Encycl. Gard.*, ed. 21, pr. 4, 71. 1942; R. McVaugh, *Ecol. Monog.* 13: 130, 135, & 159. 1943; T. G. Yuncker in Lundell, *Fl. Texas* 3: 139. 1943; J. Drayton, *Carol. Flor.* 15. 1943; J. H. Davis, *Fla. Geol. Surv. Bull.* 25: 100 & 170. 1943; Moldenke, *Known Geogr. Distrib. Verbenac. Suppl.* 1: 1. 1943; Betts, *Jefferson's Gard. Book* 30, 139, 140, & 672. 1944; F. C. Hoehne, *Relat. Anual Inst. Bot. S. Paulo* 1944: 40. 1944; Merrill, *Guide Fla. Pl.* 19 & 21. 1945; Roig y Mesa, *Plant. Medic.* 775. 1945; Moldenke, *Phytologia* 2: 68, 70, 93, & 124. 1945; Moldenke, *Bot. Gaz.* 106: 158—160. 1945; Moldenke, *Am. Midl. Nat.* 32: 575. 1945; Moldenke, *Castanea* 10: 36 & 37. 1945; Moldenke, *Am. Journ. Bot.* 32: 609 & 610. 1945; Macself, *Sanders Encycl. Gard.*, ed. 21, pr. 5, 71 (1945) and ed. 21, pr. 6, 71. 1946; Moldenke, *Phytologia* 2: 154—155. 1946; G. L. Fisher, *Am. Bot. Exchange List* n.p. 1946; A. C. Martin, *Am. Midl. Nat.* 36: 608—609, pl. 50. 1946; Moldenke, *Alph. List Cit.* 1: 3, 4, 6—11, 13—15, 17—20, 22, 23, 25, 27, 29, 30, 32—34, 37, 38, 41, 43, 45—47, 51, 52, 55, 59, 63, 64, 71, 76, 77, 81, 90, 91, 94, 97—101, 104, 107, 112—114, 116, 118, 120, 123—125, 128—130, 137—141, 143, 144, 153, 157—159, 162, 166, 169, 175—177, 181, 183, 186, 190, 192, 193, 195, 197, 199, 200, 202, 203, 205, 207, 209—211, 221, 225, 229, 234, 235, 239, 240, 242, 245—249, 253, 256—262, 265, 267—277, 280, 281, 283, 284, 288, 291—298, 301—314, 316, & 319. 1946; Moldenke, *Alph. List Invalid Names Suppl.* 1: 3 & 4. 1947; Moldenke, *Bol. Soc. Venez. Cienc. Nat.* 11: 39, 41, 42, & 51. 1947; K. W. Hunt, *Am. Midl. Nat.* 37: 689 & 747. 1947; Tatnall, *Fl. Del.* 218. 1947; Moldenke, *Phytologia* 2: 326, 327, & 346 (1947) and 2: 479. 1948; Moldenke, *Wrightia* 1: 245. 1948; Moldenke, *Castanea* 13: 121. 1948; Erickson, *Auk* 65: 577. 1948; Neal, *In Gard. Hawaii*, ed. 1, 640. 1948; Moldenke, *Alph. List Cit.* 2: 327, 333, 335, 337, 340, 343, 354—356, 390, 391, 393—395, 397—401, 403, 405, 407—409, 411, 414—416, 418, 420—429, 432, 434, 435, 437, 438, 443, 447—452, 454, 455, 458, 459, 469, 470, 472, 474, 475, 478, 481, 482, 484, 487, 489—491, 493, 495, 499, 503, 504, 507—509, 512—514, 518—522, 524, 526—528, 530, 536, 543—545, 548—550, 555, 556,

558--560, 562, 564, 566--568, 570, 572, 574, 576, 577, 579, 581, 583--585, 588, 592, 598, 601, 604, 606, 609, 614, 615, 618, 621, 626, 640, 643, 644, 646, 649, & 651 (1948), 3: 655, 657, 658, 660, 663--665, 673, 674, 678--680, 682, 683, 698, 699, 706, 708, 713, 717--719, 721, 722, 724--726, 728, 729, 731, 736--738, 740--743, 747, 749--752, 754, 756, 759--761, 763, 767, 769--771, 773--776, 778, 780, 782--784, 786--795, 797--802, 806, 816, 822, 825, 827, 828, 831, 832, 835, 841, 842, 844, 847, 848, 850--853, 855, 857, 859, 868, 869, 877, 878, 880, 882, 884, 886, 888, 891, 894, 895, 899, 903, 911, 914, 915, 917, 918, 926, 927, 929, 930, 932, 934, 936, 937, 939, 941--944, 946--948, 951, 952, 958, 963, 969, 970, 972, & 978 (1949), and 4: 979, 980, 983, 985--989, 991--994, 997, 998, 1002--1005, 1012, 1014, 1016--1018, 1020, 1022--1025, 1027--1032, 1034--1042, 1046, 1052, 1054, 1058, 1060, 1062, 1064, 1066, 1070, 1071, 1084, 1086, 1094, 1105, 1107, 1109, 1114, 1117--1120, 1122, 1126, 1129, 1133, 1135, 1143--1147, 1149, 1150, 1153, 1162, 1166, 1168, 1170, 1173, 1177--1181, 1188, 1191, 1192, 1198, 1199, 1207, 1209, 1212, 1214, 1217, 1218, 1220, 1226--1228, 1230, 1231, 1234, 1238, 1242, 1246, 1248, 1252, 1255, 1283, 1291, 1292, 1296, 1298, & 1299. 1949; Moldenke, *Phytologia* 3: 72 & 131. 1949; Moldenke, *Origins Cult. Pl.* 2, 9, & 10. 1949; R. F. Thorne, *Castanea* 14: 91. 1949; Rehd., *Bibl. Cult. Trees* 584. 1949; J. L. Hoffman, *The South* 25, 91, & 97. 1949; Jaques, *Pl. Fam.*, ed. 2, 148, fig. 453. 1949; W. J. Bean, *Trees & Shrubs Hardy Brit. Isles*, ed. 7, 1: 280. 1950; H. N. & A. L. Moldenke, *Anal. Inst. Biol. Mex.* 20: 3. 1950; Westcott, *Pl. Disease Handb.* 451. 1950; G. T. Moore, *Bull. Mo. Bot. Gard.* 38: 22--23. 1950; Moldenke, *Phytologia* 3: 284 & 304 (1950) and 3: 449--451. 1951; Keever, Oosting, & Anderson, *Bull. Torrey Bot. Club* 78: 409. 1951; W. J. Bean in Chittenden, *Roy. Hort. Soc. Dict. Gard.* 1: 358 & 359. 1951; B. C. Blackburn, *Trees & Shrubs East. N. Am.* 103. 1952; Moldenke in Gleason, *New Britton & Br. Ill. Fl.*, pr. 1, 3: 137 & 138. 1952; Moldenke, *Phytologia* 4: 88. 1952; Ponce de Leon, *Rev. Soc. Cub. Bot.* 10: 23. 1953; J. A. Steyerma., *Rhodora* 55: 238--241. 1953; Roig y Mesa, *Dicc. Bot.* 2: 389 & 996. 1953; Thorne, *Am. Midl. Nat.* 52: 313. 1954; T. L. Brooks, *Proc. Fla. State Hort. Soc.* 67: 81--82. 1954; Moldenke, *Journ. Calif. Hort. Soc.* 15: 85. 1954; Hocking, *Dict. Terms Pharmacog.* 29, 88, & 89. 1955; Alain in León & Alain, *Fl. Cuba* 4: 304 & 306. 1957; Mattoon, *Pl. Buyers Guide*, ed. 6, 83. 1958; Shinnars, *Spring Fl. Dallas* 328. 1958; Moldenke in Gleason, *New Britton & Br. Ill. Fl.*, pr. 2, 3: 137 & 138. 1958; Anon., *Biol. Abstr.* 30: 3826. 1958; Krüssmann, *Handb. Laubgeh.* 1: 254. 1959; Moldenke, *Résumé* 8--12, 14, 18, 21--23, 25, 27, 34, 49, 50, 53, 213, 234, 240, 241, 247, 248, 294, 301, 424, & 443. 1959; Moldenke, *Résumé Suppl.* 1: 2. 1959; Moldenke, *Phytologia* 7: 40. 1959; T. H. Everett, *New Illustr. Encycl. Gard.* 2: 295. 1960; Rehd., *Man. Cult. Trees*, ed. 2, pr. 9, 803, 804, & 932. 1960; Jones, Rowell, & Johnston, *Flow. Pl. & Ferns Tex. Coast. Bend* 142. 1961; Quarterman & Keever, *Ecol. Monog.* 32: 180. 1962; Moldenke, *Résumé Suppl.* 3: 2--6 & 28 (1962), 4: 1, 2, & 10 (1962), 5: 1, 2, & 4 (1962), and 7: 1 & 2. 1963; Shelford, *Ecol. N. Am.* 67, 77, 82, &

582, fig. 3A. 1963; Li, Morris Arb. Bull. 14: [1], 3, & 4, fig. 1-1. 1963; Gleason & Cronquist, Man. Vasc. Pl. 582. 1963; J. A. Steyer., Fl. Mo. 1262--1264 & 1267, map 1849, pl. 303, fig. 4. 1963; Lakela, Sida 1: 6. 1964; H. L. Hoffm., Castanea 29: 31 & 40. 1964; R. L. Taylor, Plants Colon. Days 41, 42, & 101. 1964; Moldenke, Résumé Suppl. 8: 1 (1964), 10: 2 (1964), and 12: 1. 1965; Neal, In Gard. Hawaii, ed. 2, 726 & 727. 1965; A. D. Hawkes, Guide Pl. Everglades Nat. Park 43, 45--47, & 49. 1965; Santamour, Morris Arb. Bull. 16: 52. 1965; Moldenke, Phytologia 13: 328, 425--427, 433, & 439--444. 1966; Moldenke, Résumé Suppl. 14: 1 & 5--9. 1966.

Illustrations: Pluk., Almagest. Bot. pl. 136, fig. 3. 1696; Duham., Trait. Arb. & Arbust. 1: 112*, pl. 44. 1755; Kniphof, Bot. Orig. Herb. Viv. 1: pl. 196 [in color] (1758) and 4: pl. 51. 1758; Duham., Abhandl. Baum. Staud. & Sträuch. 1: 83. 1763; Buchoz, Hist. Nat. Reg. Vég. 6, dec. 10, pl. 5. 1775; Buchoz, Herb. Color. Amér. pl. 36 [43] [in color]. 1783; Lam., Tabl. Encycl. Méth. [Illustr. Gen.] 1: pl. 69, fig. 1. 1791; Gaertn., Fruct. & Sem. Pl. 2: pl. 94. 1791; Barton, Elem. Bot., ed. 1, pl. 10, fig. 3 (1804) and ed. 2, pl. 10, fig. 3. 1836; Audubon, Birds of Amer. 2: pl. 86 [in color]. 1841; Lindl., Veg. Kingd. 663. 1846; Britton & Br., Illustr. Fl., ed. 1, 3: 74, fig. 3068. 1898; Robinson & Fern. in A. Gray, New Man. Bot., ed. 7, fig. 883. 1908; Apgar, Ornament. Shrubs U. S. 289, 290, fig. 503 & 504. 1910; C. K. Schneid., Ill. Handb. Laubholz. 2: 592, fig. 384 f--g. 1911; Hickel, Bull. Soc. Dendr. France 28: 110, fig. 45e. 1913; Britton & Br., Illustr. Fl., ed. 2, 3: 99, fig. 3563. 1913; F. S. Mathews, Field Book Am. Trees 385. 1915; G. V. Nash, Addisonia 3: pl. 103 [in color]. 1918; N. L. Britton, Fl. Bermuda 319. 1918; Walcott, N. Am. Wild Fls. 3: pl. 210. 1927; C. A. Br., La. Conserv. Rev. 4: 35. 1935; Van Dersal, Ornament. Am. Shrubs pl. 67. 1942; A. C. Martin, Am. Midl. Nat. 36: pl. 50. 1946; Jaques, Pl. Fam., ed. 2, fig. 453. 1949; Moldenke in Gleason, New Britton & Br. Ill. Fl., pr. 1, 3: 138 (1952) and pr. 2, 3: 138. 1958; Shelford, Ecol. N. Am. 67, fig. 3A. 1963; Li, Morris Arb. Bull. 14: [1] & 4, fig. 1-1. 1963; J. A. Steyer., Fl. Mo. pl. 303, fig. 4. 1963; R. L. Taylor, Plants Colon. Days 42. 1964.

Recent collectors describe this species as a small or tall handsome shrub, 1--9 feet in height, many-stemmed, with a broad round crown, the stems 3--4 feet long, arched-divergent, simple or with a few long branches, sometimes trailing over other vegetation, the branches whip-like, the leaves soft-green, long-petiole, usually very coarsely and more or less irregularly toothed (crenate-serrate) along the margins with spreading teeth, usually stellate-tomentose or densely rusty-downy beneath, the petioles 1--3 cm. long or about 1/3 to 1/5 as long as the leaf-blade; peduncles 3--10 mm. long, as long as or shorter than the petiole; calyx-rim subtruncate, 4-apiculate or very shortly triangulate-toothed; corolla varying from bluish or lavender to pale pinkish-lavender, lavender-pink, pink, pinkish, light-pink, pale-pink, pink-purple, pinkish-white, or even white; anthers yellow; fruit small, berry-like, densely crowded on bending branches, varying

from bright-blue or pink to magenta, violet, shining-violet, red-violet, reddish-violet, rose-violet, purple, dark red-purple, cerise-purple, or brilliant wine-purple when mature.

The flowers are described as "pink" on G. J. Goodman 5674, Lundell & Lundell 9653, and G. T. Robbins 2648; "pinkish" on Lundell & Lundell 7048 & 12939 and H. N. Moldenke 296; "light-pink" on G. T. Robbins 2660, Thieret 15945, and Whitehouse 16158; "pale-pink" on Thieret 15934; "pale pinkish-lavender" on Lundell & Lundell 9615; "pinkish-white" on Tharp, Turner, & Johnston 54713; "lavender" on C. L. Lundell 13930; "lavender-pink" on Shiners 20235; "pink-purple" on W. H. Duncan 20155; and "white" on C. H. Mueller 8028.

The leaves are ternate on Cuthbert s.n. [June 13, 1902]. The fruit is referred to as a "berry" by Cronquist, the Lundells, and Whitehouse, but is actually drupaceous. On one sheet of O. E. Jennings s.n. [Fort Meade, late Dec. 1916] in the Carnegie Museum herbarium the fruit looks white when dry — this sheet may possibly represent var. lactea F. J. Muller. Hottes (1942) calls the flowers "bluish" and the fruits "reddish-violet". Li (1963) describes the "flower and fruit clusters" as "sessile or nearly sessile" in his key, but they are always definitely pedunculate, with the peduncles 3—10 mm. long. He notes that the species is "one of the handsomest Callicarpa in fruit, but it is more tender than the Asiatic species. In its habitat, it is found in rich woods and thickets from Florida to Texas, north to Maryland, Tennessee, Arkansas, and Oklahoma.....The cover illustration is taken from its natural habitat in Virginia. The plant flowers from May to July and bears ripened fruits around October." Santamour (1965) found the chromosome number to be $2n = 36$. He concludes, however, that "an accurate appraisal of the cytological situation in Callicarpa will result only from a critical cytotoxic study or a large number of species."

Collectors have found the species growing in loose or Carrizo sand, Susquehanna sandy loam, dry fertile ground, sandy clay or loam, and moist or rocky loam, as well as in rich or rocky soil, clay or sandy soil, black swamp soil, moist or moist sandy soil, dry open soil or dry open rocky soil, wet sandy soil, and moist open or open dry sandy soil, in dry sandy places and swampy ground, swamp jungles, woods and rich lowland woods, low open or sandy oak woods, low moist or low moist open woods, shady or low moist floodplain woods, open or rich mesic woods, cutover pine woods, sandy pine-turkey oak woods, oak-hickory woods and forests, flat pine or upland woods, sandy pine-oak or low maple woods, low or dry sandy woods, rich or rocky woodlands, dry woodlands, forests and mixed forests, maritime and pine forests, swamp and pine-oak-hickory forests, in open places in woods and somewhat marshy places in forests, hammocks and high hammocks, oak hammocks and sandy marl hammocks, pastures and cow pastures, dense sandy woods and live oak woods. It has been found in pinelands, barren pine woods, decidu-

ous forests, thickets, roadside or woodland thickets, sandy pine-lands, pine-oak-hickory woods, alluvial woods, swamps and live oak forests, brackish marshes, valleys, salt marshes, swales, creek bottoms, bottomland pastures, roadside ditches, rich river-bottom woods, stream bottom thickets, and sunny rock crevices. It has been observed growing in loose sandy ground in oak woods, at the margins of woodlands, on creek bottoms through rich lowland woods, in pineland on granite, in sandy woodland borders, in the shade of live oak trees, and in dry southern exposure.

Collectors have encountered it along country roads and fence-rows, along ricers and small streams, and on stream banks, at the edge of low or moist woods, at the edge of swamps and creeks, in the borders of thick woods, at the edge of swampy or of oak-pine woods, in swamp or woodland borders, at the base of bluffs, close to creeks, among granite boulders, at the edge of woods and thickets, in pond or clay pond margins, at the edges of granite outcrops, among open scrub oak on mountain slopes, in pine-oak woods borders, at the edges of lakes and of upland woods, at the edge of deciduous woodland and of cypress swamps, as well as on wooded river bluffs, stream and creek banks, savannas and pine savannas, low or dry hillsides, mountainsides, wooded slopes and wet slopes, and on granite outcrops. It seems to thrive in gravelly clay pine woods, low rich bottomland, moss and soil mats over rocks, and rich woods, on low or open ridges, foothills and wooded stony slopes, sandy ridges, riverbanks, low hillsides and dry bottoms, the wooded slopes of streams, open dry slopes, and wet limestone outcrops, as well as in blackland prairie soil, floodplain forests, oak-hickory-pine woods, dry oak-hickory woodlands, dry open woodlands, bottomland hardwood-pine forests, openings in pine-oak woodlands, cutover pine and Liquidambar woods, boggy depressions, and low areas in general. It has been seen in woodlands on sand and woodlands on upper river terraces, in mountain ravines, barren pinewoods, oak forests, pine-oak woods, ravines in pinelands, the partial shade of thickets, damp ground, sand in oak-hickory woods, and in thickets at the edge of deciduous woods.

It has been collected in anthesis from April to December and in fruit in every month of the year, growing at altitudes of 50 to 1500 feet. Plée says of it "commune en Virginie et dans la Pennsylvanie"; Demaree calls it "very common" in Montgomery County, Arkansas; Thorne (1954) describes it as "abundant". Ewan says "very abundant all through mixed oak-pine woodland". Riley refers to it as growing in "woods transitional between pine and deciduous forest" in St. Tammany Parish, Louisiana, while Totten, Raynal, Hoffman, & party call it "very abundant" in Alexander County, North Carolina. Goodman found it "frequent in oak forests" in Marshall County, Oklahoma.

Lakela (1964) reports that Callicarpa americana is "occasional" in Pineola Grotto, Citrus County, Florida — the "plants rooted in clefts of rocks". Ray, Lakela, & Patman found it in "dry white sandbank with live oak, longleaf pine, saw palmetto, Quercus geminata & Q. myrtifolia, Carya floridana, Fraxinus, & Pinus clausa"

in Hillsborough County, and Godfrey states that it is "abundant in thickets at edge of deciduous woods" in Leon County of the same state. In Lundell (1942) its Texas distribution is given as follows: "In woods and moist thickets, wet slopes, low rich bottomlands, fencerows, and the edge of swamps, blooming from June to December, eastern and central Texas, from Bowie and Grayson to Orange, Jefferson, & Goliad, west to Bexar, Kendall, & Tarrant Counties." Tharp, Turner, & Johnston found it "in deep loose sandy soil with duff beneath large old stand of Pinus palustris" in Polk County; Warner says "commonest woody plant on sandy loam, deep sand, and sandy clay" in Montgomery County; Whitehouse calls it "adventive" in Tarrant County, and "abundant shrub" in Grayson County, and "one of the most abundant undershrubs in woods east of Dallas to Louisiana border"; Shinnars refers to it as "common in open oak woods, rather low sandy ground" in Dallas County; Cory describes it as "frequent in sandy woods" in Jasper County; Ruth calls it "abundant in open dry woods" in Dallas County; and Mueller encountered it "in deep sand amongst live oak, post oak, blackjack, and hickory in creek bottom" in DeWitt County, Texas. L. C. Taylor notes that it is "a favorite food of cardinals, in sunny locations in open woods, also frequent and spectacular along limestone ledges of streams" in Travis County.

Callicarpa americana grows on the coastal plain from Maryland to Florida and Texas, south to western Cuba and Coahuila; also in Bermuda. It is widely cultivated, although not as much so as the Asiatic species, C. dichotoma (Lour.) K. Koch and C. japonica Thunb. Tatnall (1947) records it from Wicomico County, Maryland. Harper (1928) records it from Butler, Chilton, Coffee, Colbert, Covington, Franklin, Greene, Hale, Marengo, Monroe, Morgan, Pickens, Sumter, Talladega, and Washington Counties, Alabama, "and probably all the other counties". He describes it as "A shrub several feet tall, with rough, coarse deciduous leaves, small pink flowers clustered close to the stem, in June and July, followed by small pink-purple berries. Occasionally cultivated for ornament, and said to be hardy as far north as Washington, D. C. No other use seems to be known for it. Grows in dry woods, hammocks, etc., avoiding the richest and poorest soils and the higher mountains. It is usually found in places where fire is rare, but fire is not necessarily fatal to it. The slope of a ravine on the University campus where Callicarpa is abundant was burned over in June, 1921, and the bushes were killed to the ground, but a few weeks later they were sending up new shoots, which reached full height by the end of the season, but apparently bore no flowers or fruit that year. So probably annual fires would exterminate the plant in a few years, and even a fire every other year might discourage it so that it would soon succumb to the competition of other plants which are less sensitive."

Murrill (1945) describes our plant as common in the Gainesville area of Florida, the corolla bluish or pink, and the fruit violet or magenta. J. H. Davis (1943) describes it as a characteristic plant of the Parkwood loamy sand soil of southern Florida. Matsu-

mura (1912) records it as cultivated in Japan. My son and I have seen it in cultivation in the Foster Gardens at Honolulu, Hawaii, in 1961. McVaugh (1943) records it from the shrub layer where the shade is "not too great" with Rhus copallinum. He also gives it as one of the woody species which survives in depressions on rock surfaces "slightly better than in soil areas on the bare rocks" along with Forestiera ligustrina, Gelsemium sempervirens, Quercus georgiana, and Vitis rotundifolia. He describes it as a "common shrub throughout this region, and apparently quite tolerant of soil acidity, as it is one of the chief shrubby invaders of vegetation mats on the flat rocks, where it is associated with Rhus copallinum, and, in the mature stages of the association, with Juniperus virginiana, Vaccinium arboreum, and Pinus taeda. The violet-purple fruit is abundantly produced and very ornamental, and the plant is richly deserving of cultivation on its account."

Van Dersal (1942) comments that Callicarpa americana and Hydrangea quercifolia "which do not occur naturally in the northern part of region 28 [of Mumford's Plant Growth Regions], have long been successfully grown there. Neither of them, however, can be grown in region 27." He describes the beautyberry as follows: "Found in the Southeast is a lovely purple-fruited shrub known locally as French mulberry. The plant is no mulberry and it certainly is not French, hence its proper name now is American beautyberry.....The plant is a well-branched shrub 2 to 6 feet tall, with soft green leaves and bluish flowers produced from June to August. The fruits are small and berry-like, shining violet or red-violet in color, and are carried in clusters along the whip-like branches much like beads on a string. The whole tone of the shrub after the leaves have fallen is a violet or purple from the masses of fruit. The shrub fruits from July to September, depending on the situation, and the fruits may sometimes persist several months. In its native habitat beautyberry grows in rich woodlands, old fields, woods edges, or sometimes in very poor eroded soil. It ranges from Virginia to Missouri south to Texas and Florida, in plant growth regions 17, 20, 25, 28, 29, and 30. It is not hardy in Massachusetts or in England except in the milder parts of that country. Sand, clay, loam, and gravel are acceptable to it, but the richer the soil the better the berries. The shrub is very attractive to birds, 12 species of which are known to feed upon the fruits; they include cardinals, thrushes, bobwhites, mockingbirds and towhees."

Steyermark (1953) gives a very interesting account of the botanical history of this plant in Missouri: "The French Mulberry or Beauty-berry....., one of the most beautiful of native American shrubs, had never been found in a wild state in Missouri. E. J. Palmer, Bush, Letterman, Eggert, and Kellogg were well acquainted with it in Arkansas, where they had collected it from various localities, many of them near the Arkansas-Missouri border, but, although they looked for it in adjacent southern Missouri, none succeeded in locating a Missouri station. Reports of its occurrence

in the state crept into the literature; for example, it was reported in Tracy's Catalogue of the Missouri plants in 1886 on p. 66 from Miller County as collected by Winick, but these reports proved to be based upon misidentifications. In Dr. Moldenke's Monograph.....the Missouri records are likewise shown to be based upon unauthenticated reports.

"At the New York Botanical Garden in the spring of 1949 I conferred with Dr. H. N. Moldenke about the distribution of the Verbenaceae in Missouri, and was surprised to learn that he had examined a specimen of Callicarpa americana supposedly collected in Chariton County, Missouri, by Mrs. Henry S. Young of the Carnegie Museum. She had collected the plant on June 30, 1925. My immediate reaction was that there must be some mistake, since Chariton County is in glaciated north-central territory and not the sort of terrain for Callicarpa. If it occurred anywhere in the state, it should have been found in extreme southern Missouri in an unglaciated section.

"That same spring, I wrote Mrs. Young and expressed my interest in learning the exact station where she had collected the plant, at the same time expressing the possibility of a mistaken locality. I was gratified to hear from her as follows: 'I am so sorry to cause all this trouble about the Callicarpa americana. I am normally a very careful worker and I had a large collection of Chariton Co., Mo., also of Logan Co., Ark. In working these over — with both places in my mind — I simply wrote the one state when it should have been the other. I take great pride in seldom making a mistake. But this was a bad one. So sorry!' As of the summer of 1949, then, Callicarpa americana was yet unknown to occur in a wild state in Missouri.....

"It was while botanizing on September 29, 1949, along a stretch of White River in Taney County by the Missouri-Arkansas line, just within Missouri territory, that I made a real discovery. From a place on the White River known as Brown's Ferry I was walking downstream north and east towards Cedar Hol along the rocky, limestone, wooded slopes that faced to the south into Arkansas. That afternoon I had not found anything especially exciting; then suddenly I spotted some clusters of small fruits of an unusual shade of purple (between a doge purple [color 732, p. 96, vol. 1. 1938] and beetroot purple [color 830/2, p. 173, vol. 2. 1939] according to the colour chart of the Royal Horticultural Society). Nearing the fruits and examining them, I recognized at once that they were indeed those of the long hunted Callicarpa. Not one bush, but many were encountered in a small area on the wooded slopes from twenty to twenty-five feet above the surface of the river. Careful search revealed a rather frequent occurrence of the plant scattered up the rocky slopes to the lowest line of limestone bluffs, the highest point reached being 60 feet above the water level of the river.

"I collected many duplicate specimens for distribution to various herbaria and was pleased to realize that here was a new north-western limit of distribution for this shrub. At the same time,

however, my pleasure in seeing this remarkably beautiful shrub was dispelled by the thought that it would not be long before these plants and the species, at the only known station in the state, would become exterminated. For, although the altitudinal distribution of Callicarpa was found as high as sixty feet above the present water level, the future impoundment of the Bull Shoals dam would not only completely cover this sixty feet, but fifty to sixty additional vertical feet. This would bring the level of the impounding waters well up on the high south-facing limestone bluffs that towered far above the last upper stand of Callicarpa bushes.

"On May 5, 1951, I re-visited this spot and found the plants only after a difficult search, because the new stems were rising from the ground surface rather than growing out from the old wood. During the latter part of October the waters of Bull Shoal dam began to rise on the White River and its various tributaries. Shore-lines were becoming permanently flooded. Trees and shrubs representing many species were being cleared along all the slopes from the old level of the streams to the upper new level of the impounded water and were being cut down ruthlessly and burned. An inferno of flames and smoke passed over the southwestern Ozarks, and with them the first and only stand of Callicarpa discovered in Missouri faded into oblivion."

The same author (1963) says "The only station known in Missouri.....has now been exterminated by the impounded waters of Table Rock Dam.....It is a tragedy.....In the University of Illinois Herbarium appears a specimen of this labelled 'Oxybaphus albidus, Jackson County, May 29, 1884', collected by Bush. The label is from a Mo. State University sheet (no. 17619) and obviously is a mixed label."

It should be recorded here that Smith & Stewart S.103 and Radford & Stewart S.103, cited below from cultivation, were grown from seeds obtained in Cumberland County, North Carolina, while Radford & Stewart S.56 is from seed collected in Alexander County of the same state.

The specific name of our plant is very often upper-cased, a practice now frowned upon by followers of the present edition of the International Rules of Botanical Nomenclature.

Under Genus 136, Callicarpa, in the Linnean Herbarium in London, specimen number 1 is inscribed "americana" in Linnaeus' own handwriting and "=vera" also in his hand, and bears a label of Gronovius. Linnaeus (1753, 1762) gives Burchardia Duham., Johnsonia Mill., and Sphondylococcus Mitch. as synonyms of Callicarpa americana, but these names are more properly regarded as generic synonyms and are so listed by me in the present work.

It should be noted that the C. americana of Blanco, mentioned in the synonymy above, is actually a synonym of C. formosana Rolfe, C. americana Hort. is C. longifolia Lam., C. americana Lour. is C. candicans (Burm. f.) Hochr., and C. americana Sessé & Moc. is C. pringlei Briq. [not C. acuminata H.B.K. as erroneously stated by me

in my 1936 work, unless one does not wish to recognize the validity of C. pringlei as a distinct taxon].

Sprengel (1825) and Schultes (1827) place Callicarpa globiflora Ruiz & Pav. in the synonymy of C. americana L., but it actually is a synonym of Aegiphila integrifolia (Jacq.) Jacks. Because of this faulty synonymy, Sprengel gives the distribution of C. americana as "Carolina. Virginia. Amer. austr." Martin (1946) discusses the endosperm morphology.

The sheet of W. C. Coker s.n. [Arboretum, October 21, 1944] has a label inscribed "White-berried form and purple-berried form from the same root", but the specimen comprises just two tips of branches, the berries on both of which have dried exactly the same as is seen in the normal purple-fruited plant.

Common and vernacular names recorded for our plant are "American beautyberry", "American callicarpa", "americanische Wirbelbeere", "amerikanische Schönbeere", "amerikanische Wirbelbeere", "beauty berry", "beauty-berry", "beautyberry", "beauty-fruit", "Bermuda mulberry", "Bermudian mulberry", "bird-eye", "bunchberry", "burcardie d'Amérique", "callicarpa américaine", "callicarpe d'Amérique", "Carolinian shrubby callicarpa", "commode mulberry", "common American beautyberry", "filigrana", "filigrana de mazorca", "filigrana de piñar", "filigrana fructo morado", "filigrana fruto morado", "filigrana morada", "foxberry", "French berry", "French-lace", "French mulberry", "French-mulberry", "inkberry", "Mexican-mulberry", "purple beauty-berry", "sour-bush", "sourbush", "Spanish-mulberry", "turkey-berry", "turkeyberry", and "Yankee-spice". It should be noted, however, that the name "bunchberry" is also applied more commonly to Chamaepericlymenum canadense (L.) Asch. & Graebn. in the Cornaceae, "foxberry" to Mitchella repens L. in the Rubiaceae and Uva-ursi procumbens Moench in the Vacciniaceae, and "inkberry" to Ilex glabra (L.) A. Gray in the Ilicaceae and Phytolacca americana L. in the Phytolaccaceae.

Sims (1819) reminds us that the common name "mulberry" was originally applied to this and related species because the fruits of C. americana, type species of the genus, are borne so close together in the fruiting cyme as to appear like one compound fruit.

Seymour (1929) records the following fungi as attacking Callicarpa americana: Atractilina callicarpae Dearness & Barthol., Botryosphaeria callicarpae Cke., Cercospora callicarpae Cke., C. pulvinulata Sacc. & Wint., Coniothyrium callicarpae Cke., Diatrype callicarpae B. & Rav., Meliola amphitricha Rav., M. cookeana Sacc. & Speg., M. inermis Kalchbr. & Cke., and Melogramma callicarpae Cke. Westcott (1950) says that it is attacked by black mildew (Meliola cookeana) in Florida and Louisiana and by leafspot (Cercospora callicarpae) from South Carolina to Texas. Brooks (1954) reports that this species is one of the hosts for Radopholus similis in Florida. Coker reports "Infested with soft scale insects belonging to a group closely related to that of cochineal. It is

large, measuring when fresh up to 1 cm. wide and shrinking very little in drying. It has a soft spongy covering, almost white as chalk. The insect itself is full of a deep red thickish liquid, as in the cochineal. Dr. Metcalf of State College did not know the genus or species. The insect was fairly common on French Mulberry here [Bull's Island, South Carolina] and occurred less commonly on Aralia spinosa." Yuncker (1943) tells us that Callicarpa americana is parasitized by Cuscuta coryli Engelm. in Texas.

According to Rehder (1940) Callicarpa americana was introduced into cultivation in 1740, but actually it was first sent to England for cultivation in 1724 [see Bean (1951)]. It was grown both by John Bartram and Thomas Jefferson in their respective gardens. Bailey (1935) avers that it is offered to the horticultural trade now by Howell Nurseries and by Sanford Arboretum in Knoxville, Tennessee, by Katzenstein & Company in Atlanta, Georgia, and by the Sarcoxie Nurseries in Sarcoxie, Missouri. Mattoon (1958) lists eleven horticultural sources.

The physico-chemical properties of the sap in relation to phytogeography are discussed by J. A. Harris (1934). He based his work on specimens collected in the Royal State Park, Florida, as well as in Brickell Hammock and Sykes Hammock, scrub-covered sand dunes of the barrier reef between the ocean and Halifax River at Mosquito Inlet north of Port Orange, and in a mixed community of pine and hardwoods in a deep hammock near Pablo, Saint Johns County, Florida. He also used material from a wooded bluff on the south shore of St. Mary's River about 6 miles above St. Mary's, Georgia, in low flat sandy oak woods 1 1/2 miles north of Fort Oglethorpe, in flat pine-cabbage palmetto woods at the head of navigation on Turtle River, and in moist almost swampy woods at Cabin Bluff Wharf, at the head of the Cumberland River in the same state. His North Carolina material was from higher ground in swamps at South Mills, Camden County, swampy depressions and wooded sand dunes at Swansboro, and the wooded leeward side of sand dunes in Onslow and Brunswick Counties.

Drayton (1943) reports that it "Blossoms in July; grows in dry lands. Said to be useful in dropsical complaints." Rosenthal (1862) also says "Die Blätter sind als Folia Callicarpae gegen Wassersucht gebräuchlich, die Früchte geben rothe Farbe." It is also reported to be useful as a fish-poison. L. A. Taylor (1940) reports that in Alabama it was formerly employed against malarial fever — "The patient is given a sweat bath with the steam from the boiling roots and leaves of the French Mulberry"; that the Choctaw Amerinds use it against dysentery, colic, and dizziness. "The roots are boiled with those of Rubus sp. The patient drinks the decoction to cure dysentery.....A decoction made from the roots and berries is drunk to relieve colic,.....The roots are boiled and the decoction is drunk during the attacks of dizziness." The Koasati Amerinds use it in the treatment of stomach-ache — "A decoction is made by boiling the roots. This is drunk to relieve stomach-ache." She makes the comment that "The sweating of the patient during a fever attack would be beneficial regardless of the plants used."

Mention should be made here of the fact that the Buchoz (1783) illustration is sometimes cited as "pl. 43", but the plate in question is plainly labeled "XXXVI" in the two copies of this work in the library and in the herbarium of the New York Botanical Garden -- possibly it is labeled otherwise in other copies. The V. Matthews s.n. [Arboretum, July 10, 1934] specimen bears a notation "drawn for book." Murray (1774, 1784) cites the Linnean *Mantissa* synonym as page "128", but it was actually published on page 198.

The Buckley s.n. [July, 1820] specimen cited on page 313 of my 1936 work is actually from Wilcox County, Alabama, the G. M. Merrill 21 is from Pope County, Arkansas, and the Gattinger s.n. [east of Cleveland] is from Bradley County, Tennessee -- the county names in all these cases having been omitted by the printer when making corrections in the page-proof. The Andrews specimen from "Lyon's View", cited on the same page, is from Knox County, Tennessee. On page 314 the Edwards collection cited from Fort Towson, "Arkansas", is actually from Fort Towson in Choctaw County, Oklahoma. Likewise, the Trelease collection from "Wagner Cove" is in reality from Magnet Cove, Hot Spring County, Arkansas.

Lindheimer 1067 is labeled "Comanche Spring: New Braunfels, etc.", so may actually have been gathered in Comal, Comanche, or some other county of Texas. C. C. Perry s.n. [En route from San Luis Potosi to San Antonio, Texas, August 1878] may have been collected in Mexico or several other Texan counties rather than in Bexar County as here cited. The label of M. Morgan 91 is inscribed "Plants of Florida", but the specimen was collected in Cullman County, Alabama. According to E. J. Alexander, the M. E. Hyams s.n. [Rebel Retreat, June 1879] could have been collected in Iredell or McDowell Counties, North Carolina. The Collector undesignated s.n. [Herb. Iowa State Coll. 108282] is labeled "probably Wichita, Kans.", but this is doubtless an error because the species is not known from that state -- its labels appear to have been mixed since one in longhand on the same sheet is inscribed "Caprifoliaceae 457 Symphoricarpos vulgaris".

The Avery, Jefferson, and Weeks Islands, cited below, are in Iberia Parish, Louisiana; Key Largo is in Monroe County, Florida; and Calington Island is in Dare County and Smith Island in Brunswick County, North Carolina.

The C. Hartmann s.n. [Huntsville, Summer 1912] specimen in the University of California herbarium has the collector's surname misspelled "Hartman".

Material of this species has been misidentified and distributed in herbaria under the names C. cana Spreng., C. purpurea Juss., and Maclura aurantiaca Nutt. On the other hand, the Rob. Burton s.n. [October 1946], Radford 4849, and W. H. Rhoades s.n. [North Wales, August 1934], distributed as C. americana, are actually C. dichotoma (Lour.) K. Koch; Chambers s.n. [Monterrey, Mexico] is Buddleia wrightii Robinson in the Loganiaceae; Mrs. H. S. Young s.

n. from Arkansas is Symphoricarpos orbiculatus Moench in the Caprifoliaceae; and Pammel & Pammel s.n. [Miami, Jan. 15, 1928] is Trema floridana Britton in the Ulmaceae.

Hooker (1836) cites T. Drummond 254bis & s.n. [1833] from Louisiana.

In all, 2558 herbarium specimens and 59 mounted photographs and illustrations have been examined by me, including type material of most of the names involved.

Additional & emended citations: MARYLAND: Wicomico Co.: W. M. Canby 724 (W--1323259). VIRGINIA: Elizabeth City Co.: T. W. Chickering s.n. [Fortress Monroe] (F--149574); Churchill s.n. [July 22, 1927] (Vi); G. N. Vasey s.n. [Ft. Monroe] (W--56143). Gloucester Co.: Sargent & Smith s.n. [vicinity of Gloucester] (D--702382). Isle of Wight Co.: A. R. Moldenke 476 (Fg). James City Co.: R. W. Menzel 71 (Mi); Sargent, Thayer, & Smith s.n. [near Williamsburg] (D--702403). Mathews Co.: Rothrock s.n. [Aug. 5, 1879] (E--119321), s.n. [Aug. 10, 1879] (F--322345). Nansemond Co.: Britton, Britton, & Vail s.n. [Suffolk] (F--394771); A. R. Moldenke 477 (Fg). Norfolk Co.: Blanchard s.n. [Dewall's Point] (W--309653); Britton, Britton, & Vail s.n. [July 2d, 1892] (Ca--50624, Cm); Curtiss s.n. [June 27, 1872] (Al), s.n. (F--149781); E. Durand s.n. (F--725399); J. A. Harris C.19334 (F--901598, H--13009); Hubricht B.2559 (Au); M. E. Hyams s.n. [near Sewall's Point, Nov. 7, 1890] (Dt); Kearney 1296 (W--356014), 1498 (W--356192); A. R. Moldenke 479 (Fg); Noyes s.n. [July 10, 1897] (Hp); Rugel s.n. [near Portsmouth] (Ed); A. B. Seymour 16 [91718] (E--981763, Ew, Gg--358636, Lb--16203). Northampton Co.: W. M. Canby s.n. [Eastville, Oct. 1867] (Pa), s.n. [Cape Charles City, Aug. 1894] (Pl--22586), s.n. [eastern shore of Md. & Va.] (F--315218), s.n. (Dt); Canby & Rose 839 (W--297958); Fernald & Long 5426 (Up); Fogg 10033 (Up); H. A. Gleason Jr. s.n. [Sept. 13, 1934] (We); H. G. Richards s.n. [October 27, 1929] (Up); R. R. Tatnall 3014 (Up), 3206 (Up). Princess Anne Co.: Bartram s.n. [Virginia Beach] (D--648998); Bartram & Long s.n. [Sep. 15, 1907] (Up--46744); Bright 1196 (Dm); F. E. Egler 40-269 (N); Fogg 9773 (Up); Harshberger s.n. [Virginia Beach] (W--441487); A. A. Heller 1057 (Ca--36826, E--119297, F--352637, Mm--15349, Pl--22587, Up--17063, W--56144), s.n. [July 12, 1893] (Ed); A. S. Hitchcock s.n. [Virginia Beach, Sept. 4, 1905] (Ur); Hollick & Britton s.n. [Virginia Beach] (W--310788); Kearney 2086 (W--356740); K. K. Mackenzie 1702 (E--119317, Ed); McCallum s.n. [Virginia Beach, 1921] (Cm); Meredith s.n. [Inlet] (D--624476), s.n. [south of Virginia Beach] (D--613543, E--961558); Piper s.n. [Virginia Beach] (W--592946). Southampton Co.: Fernald & Long 6363 (N, Up); Tidestrom 6841 (Ar--10094, W--693896). Surry Co.: A. R. Moldenke 475 (Fg). Warwick Co.: Swinerton s.n. [Newport News] (Mu--

4299). County undetermined: Plée 386 (P). NORTH CAROLINA: Alexander Co.: W. B. Fox 1015 (No—11604); Keever 156 (H—74535), 409 (H—73320); Radford 13867 (Hi—93390); Radford & Stewart 1656 (Au, Hi—22648); Totten, Raynal, Hoffman, & party s.n. [May 21, 1938] (Hi—3252). Anson Co.: Ahles & Leisner 19284 (Hi—93389); S. G. Boyce 1042 (Hi—21038). Beaufort Co.: Blomquist 7962 (H—36087); D. S. Correll 1546 (We); R. K. Godfrey 8454 (Dm); Moore & Woods s.n. [Aug. 1, 1948] (No—13979); Radford 36162 (Hi—105614), 42019 (Hi—105613). Bertie Co.: Ahles & Haesloop 52110 (Hi—106784); D. S. Correll 1973 (H—33129); R. K. Godfrey 6998a (No—8580); A. R. Moldenke 470 (Fg). Bladen Co.: Ahles & Haesloop 29127 (Hi—105610); Biltmore Herb. 1720c (Al, E—119153, Fc, Io—42471, Na—10852, S, Vu, W—332094); F. E. Boynton s.n. [Feb. 1896] (E—119320); A. A. Heller 14041 (Du—157515, E—932538, F—689834, Se—85971). Brunswick Co.: Fox & Wells 501 (No—8577); R. K. Godfrey 6381 (No—8584); Reed & Stites 34 (Dt), 104 (Dt); B. W. Wells s.n. [7/3/1940] (No—8578). Camden Co.: D. S. Correll 2071 (Bt—33196, H—32131); J. A. Harris 17733 (W—904925); A. R. Moldenke 481 (Fg). Carteret Co.: Eyster 265 (Ur); Fox & Whitford 1108 (No—11379); R. Gray s.n. [Shackleford Banks, 6/28/38] (H—50202); B. W. Wells s.n. [6/28/1930] (No—8583). Chatham Co.: Radford 6288 (Hi—59413). Chowan Co.: Ahles & Duke 50922 (Hi—106785); D. S. Correll 2033 (H—32133); A. R. Moldenke 469 (Fg). Columbus Co.: Ahles 475 (Ur); Blomquist & Correll 4899 (H—31648); R. K. Godfrey 6279 (Hi—10563); P. O. Schallert 64, in part (Ur); Wiegand & Manning 2689 (Po—214782). Craven Co.: Radford 37377 (Hi—105609). Cumberland Co.: Radford & Stewart s.n. [Oct. 8, 1939] (Hi—13123). Currituck Co.: Bartley & Pontius 429 (N); F. Blanchard s.n. [Snowden, Nov. 9, '90] (Dt). Dare Co.: F. R. Fosberg 17839 (No—23071); P. O. Schallert 64, in part (B), s.n. [7/10/41] (Au, Ca—882439, Du—369449), s.n. [7/14/41] (N); Radford, Haesloop, & Miller 7553 (Hi—55816). Duplin Co.: Ahles 35720 (Hi—105605). Durham Co.: Blomquist 4703 (H—20441). Edgecomb Co.: Bridgers s.n. [Tarboro, Oct. 1916] (Hi—59414). Franklin Co.: J. S. Holmes s.n. [Sept. 29, '14] (Hi—59405). Gaston Co.: Oosting 1637 (H—42785). Gates Co.: Ahles & Duke 44595 (Hi—106786), 51468 (Hi—106787). Graham Co.: Radford 15910 (Hi—92919). Greene Co.: A. R. Moldenke 465 (Fg); Radford 40343 (Hi—104895). Halifax Co.: Bartram s.n. [Weldon] (D—538223); R. K. Godfrey 5230 (H—47044); H. R. Totten s.n. [Oct. 28, 1934] (Hi—59411). Harnett Co.: Foust & Foust s.n. [6/29/38] (N); Radford 6278 (Hi—54202); Radford & Stewart 630 (Hi—21461). Henderson Co.: Small & Huger s.n. [Chimney Rock to Hendersonville] (F—401309). Hertford Co.: D. S. Correll 2298 (H—32256); Woods &

Moreland BWO.43 (Hi--34131, No--13877). Hoke Co.: Bell 185-552 (Hi--33633). Hyde Co.: Radford 39034 (Hi--104896). Iredell Co.: M. E. Hyams s.n. [Rebel Retreat, June 1879] (Ka). Johnston Co.: Deans s.n. [Selma, Oct. 22, 1937] (Hi--59401); Fox, Whitford, & Campana 1227 (No--12638); B. E. Smith s.n. [Sept. 14, 1932] (Hi--59410). Jones Co.: Beaven 525 (H--32498); Corbin & Wyatt 6-137 (Hi--57633); J. S. Holmes s.n. [Maysville, July 12, 1919] (Hi--59404); McCarthy s.n. [Trent River] (W--787638). Lee Co.: S. Stewart 818 (Hi--106788). Lenoir Co.: D. S. Correll 1424 (E--1111450, H--32257); Radford 28990 (Hi--92905); H. R. Totten s.n. [Aug. 8, 1931] (Hi--59408). Martin Co.: R. K. Godfrey 7028 (H--50271, No--8582); A. R. Moldenke 471 (Fg); Radford 39465 (Hi--104422), 41927 (Hi--104423). Montgomery Co.: Oosting 1858 (H--49628); Radford 19366 (Hi--92924). Nash Co.: Ahles & Leisner 21279 (Hi--93424). New Hanover Co.: MacElwee s.n. [Wilmington] (D--517409); Macfarlane s.n. [June 16--22, 1894] (Up--36437), s. n. [June 26, 1908] (Up--39738); Macfarlane & Davis s.n. [June 18, 1894] (Up); Uhler 68 (W--1467250); Wells & Shunk s.n. [May 14, 1937] (No--8579). Northampton Co.: Ahles & Haesloop 52388 (Hi--106789). Onslow Co.: R. K. Godfrey 6396 (H--55388, Hi--10493), 6455 (Hi--10327); J. A. Harris C.19570 (Pl--84073); C. E. Wood 6463 (Hi--51185). Orange Co.: T. Brown s.n. [Oct. 18, 1948] (Hi--35042). Pamlico Co.: Davis & Davis 10510 (We); Godfrey & White 6801 (Fl--12343, No--8581); Oosting 33212 (H--17907); Radford 35827 (Hi--104544). Pasquotank Co.: Ahles & Duke 48078 (Hi--104418, Hi--104419); D. S. Correll 2097 (H--32132); A. R. Moldenke 472 (Fg). Pender Co.: Ahles 36182 (Hi--104565); M. E. Hyams s.n. [Burgaw, July 1880] (Dt, Dt, Po--85770), s.n. [Bengaw] (E--119186, W--147596). Perquimans Co.: A. R. Moldenke 467 (Fg). Polk Co.: E. C. Townsend s.n. [Chimney Rock, July 16, 1897] (Pl--86885). Richmond Co.: Radford 14482 (Hi--92926). Robeson Co.: Ahles 37281 (Hi--104543). Rowan Co.: Biltmore Herb. 1720e (B, Bg Dr, F--806890, Na--10867, Vu, Vu, W--332095); A. A. Heller 140 [June 28] (E--119298, F--313137), 140 [Aug. 21] (Ca--25094, Ca--25095, E--119299, Ed, F--396189, Up--17065, Up--17066); J. B. Horton 557 (Hi--93425); J. K. Small s.n. [Dunn's Mtn.] (F--179893). Rutherford Co.: Biltmore Herb. 1720d [July 22] (Go, Lu, S); C. H. Hall s.n. [Shaking Bald Mt.] (Vt); Rugel s.n. [inter Asheville et Rutherfordtown, Aug. 1842] (Ed, Go); E. C. Townsend s.n. [Chimney Rock] (W--341524). Sampson Co.: Ahles & Haesloop 29966 (Hi--104542). Scotland Co.: Ahles & Haesloop 28699 (Hi--104541); R. K. Godfrey 5066 (H--47033). Stanly Co.: Ahles & Radford 11933 (Hi--92927). Tyrrell Co.: D. S. Correll 1899 (H--32134, N). Wake Co.: Blomquist & Correll 2514 (H--32362); Buell & Godfrey 1713 (H--

68253), s.n. [9-30-1937] (No--8585); Coker & Totten s.n. [April 9, 1932] (Hi--59403), s.n. [5/29/1932] (Hi--59409); Radford 8220 (Hi--57275); H. R. Totten s.n. [July 24, 1916] (Hi--11093, Hi--59415). Washington Co.: Radford 38767 (Hi--104540). Wayne Co.: Blomquist & Correll 4796 (H--31652); Buckley s.n. [June 22, 1849] (Ca--379992); W. B. Fox 4945 (Ur); Radford 25449 (Hi--93428). Wilson Co.: J. F. Matthews 105 (Hi--106790). Calington Island: Paris & Daniel s.n. [10/31/54] (Hi--58139). Roanoke Island: Radford & Stewart 826 (Hi--15067, Ur). Smith Island: Blomquist s.n. [Sept. 3, '32] (Ob--68638); Fox & Wells 501 (Ca--743928); J. A. Harris C.19591 (F--901618); A. C. Mathews s.n. [May 1, 1935] (Hi--5856); W. Palmer s.n. (W--312354). County undetermined: Ashe s.n. [eastern N. C.] (E--119327), s.n. [southeastern N. C.] (E--119328, W--327648); Collector undesignated s.n. [October 19, 1897] (S), s.n. [26 Oct. 1897] (S); M. A. Curtis s.n. [1842] (E--119308); M. G. McCarthy s.n. [July 1885] (W--147599), s.n. [Oriente Carolina, Sept., Julii 1885] (Hi--59406), s.n. [eastern N. C.] (Ed, F--349111, W--227156). SOUTH CAROLINA: Abbeville Co.: Radford 25956 (Hi--93388). Aiken Co.: Radford 543 (Hi--16750). Allendale Co.: Ahles & Bell 15874 (Hi--93391); A. R. Moldenke 420 (Fg). Anderson Co.: W. H. Davis 9372 (E--899622); H. R. Totten s.n. [6-29-1935] (Hi--59416). Bamberg Co.: Ahles & Haesloop 30571 (Hi--105611). Barnwell Co.: A. R. Moldenke 424 (Fg). Beaufort Co.: Ahles & Bell 15551 (Hi--93398); C. P. Alexander 258 (W--910455); C. R. Bell 4789 (Hi--92921). Berkeley Co.: Ahles 35503 (Hi--105612); J. C. Barber s.n. [Aug. 21, 1949] (N); Revenel 3712 (Ed). Calhoun Co.: Ahles 35252 (Hi--105607); Ahles & Haesloop 30187 (Hi--105606). Charleston Co.: Harshberger s.n. [August 8, 1911] (Up--63344); K. W. Hunt 269e (It), 2691 (Hi--27624); Stewart s.n. [near Charleston] (F--115750). Cherokee Co.: Ahles 34395 (Hi--105608). Chesterfield Co.: Radford 15726 (Hi--92922). Clarendon Co.: Radford 24487 (Hi--93392). Colleton Co.: C. R. Bell 3622 (St). Darlington Co.: M. A. Curtis s.n. [Society Hill, June 1852] (Pa); J. B. Norton s.n. [July 8, 1920] (Hi--59396); B. E. Smith 372 (Hi--26487), 1304 [June 1940] (Hi--26486), 1304 [Aug. 3, 1940] (Hi--26486), 1456 (Hi--26484), s.n. [Hertsville, 10/20/31] (Hi--59392). Dillon Co.: Ahles 37160 (S); Ahles & Haesloop 27826 (Hi--104894); A. R. Moldenke 451 (Fg). Dorchester Co.: Ahles & Haesloop 37809 (Hi--121516). Edgefield Co.: Radford 26394 (Hi--93393). Fairfield Co.: C. R. Bell 9452 (Hi--93394); House 2474 (W--514145). Florence Co.: C. R. Bell 13378 (Hi--121517); Wiegand & Manning 2690 (Po--214783). Georgetown Co.: D. S. Correll 5292 (H--42513); Godfrey & Tryon 126 (Ca--956875, Gg--290707, H--58063, It, N). Greenville Co.: O. M. Freeman 57521 (Hi--93416); Thomason 61 (Gg--310909);

Wherry s.n. [September 20, 1934] (Up). Greenwood Co.: W. H. Davis 9128 (E--898877); Radford 26737 (Hi--93415). Hampton Co.: C. R. Bell 3913 (Hi--92920). Horry Co.: Coker & Totten s.n. [July 13, '32] (Hi--59399); A. R. Moldenke 456 (Fg). Jasper Co.: Ahles & Bell 15664 (Hi--93418). Kershaw Co.: Britt 841 (Hi--177880). Lancaster Co.: Ahles & Haesloop 27457 (Hi--104425); Huntley 139 (H--54983). Laurens Co.: C. R. Bell 10277 (Hi--93421); O. M. Freeman 56496 (Hi--92923). Lee Co.: A. R. Moldenke 438 (Fg); Radford 27319 (Hi--93420). Lexington Co.: Hexamer 364 (Us), s.n. [Lexington, 14 June 1855] (Br); Hexamer & Maier s.n. [June 14, '55] (Cm); E. A. McGregor 208 (Du--75709), s.n. [vicinity of Batesburg] (W--982620); Radford 27152 (Hi--93419). Marion Co.: C. R. Bell 13661 (Hi--121518); A. R. Moldenke 459 (Fg). Marlboro Co.: Radford 19030 (Hi--92925). McCormick Co.: Radford 26218 (Hi--93422), 39828 (Hi--104424). Newberry Co.: C. R. Bell 9191 (Hi--93423). Oconee Co.: A. P. Anderson 1455 (Io--17437), s.n. [Walhalla, October 1897] (Io--21409). Orangeburg Co.: Ahles & Leisner 31545 (Hi--104421); A. R. Moldenke 460 (Fg). Pickens Co.: Bannister & Anderson 575 (Hi--104420). Richland Co.: C. R. Bell 16400 (Hi--180054); Crawford s.n. [Columbia] (F--218957); Seeman s.n. [Columbia, Oct. 1932] (H--5421); K. A. Taylor 91 (Ur), s.n. [Columbia, June '91] (Dt). Saluda Co.: Radford 26853 (Hi--93427). Sampson Co.: A. R. Moldenke 464 (Fg). Sumter Co.: Radford 27522 (Hi--93426). Union Co.: O. M. Freeman 56667 (Hi--92928). Williamsburg Co.: Radford 24644 (Hi--93396). York Co.: Ahles 34645 (Hi--104539); Ahles & Haesloop 31128 (Hi--104538). Bull's Island: W. C. Coker s.n. [Christmas 1945] (Hi--28149). Isle of Palms: T. G. Harbison 12 (Hi--8418). Pawley's Island: Radford 24915 (Hi--93417). St. Helena Island: Cuthbert s.n. [June 13, 1902] (Fl--20934). Sull Island: W. Palmer s.n. (W--513617). Witherspoon Island: B. E. Smith 1454 (Hi--26485). County undetermined: Curtiss s.n. [S. C., 1852] (Us); J. A. Harris C.19701 (W--1435755).

GEORGIA: Bacon Co.: A. R. Moldenke 343 (Fg). Baldwin Co.: H. N. Moldenke 23037 (Ac). Bibb Co.: Mattams s.n. [Macon] (Pa); A. R. Moldenke 368 (Fg); W. H. Rhoades s.n. [near Macon] (Hs). Bleckley Co.: A. R. Moldenke 375 (Fg). Brooks Co.: A. R. Moldenke 311 (Fg). Burke Co.: A. R. Moldenke 408 (Fg). Charlton Co.: Strausbaugh & Core s.n. [June 5, 1954] (We). Chatham Co.: Crawford s.n. [Thunderbolt] (D--602443); Miller & Maguire 1252 (Ua--16568); Oemler s.n. [1837] (Lu). Chattooga Co.: Freeman & Freeman s.n. [Blowing Spring near Chelsea, June 9, 1921] (Ar--19782). Clarke Co.: J. H. Miller 106 (F--556659), E.1034 (Up). Clayton Co.: E. B. Travis s.n. [Riverdale, 10-8-30] (Ga). Colquitt Co.: Kirkpatrick s.n. [Doerun, 8-14-30] (Ga). Columbia Co.: Pyron & McVaugh 1043 (Up). Dade Co.:

Graves 1054 (E-975490). Decatur Co.: A. R. Moldenke 295 (Fg). DeKalb Co.: Alexander, Everett, & Pearson s.n. [Stone Mtn., Oct. 1, 1933] (N); W. M. Canby 487 (W-1323260), 6457 (E-119185), s.n. [Stone Mtn.] (F-351669); D. S. Correll 6579 (H-55781); J. Davis 2121 (Au), 5689 (Au); Eggert s.n. [Little Stone Mtn.] (E-119165); R. M. Harper 187 (E-119149, Ed, F-140636, W-384819); McVaugh & Pyron 373 (O); F. W. Pennell 4027 (Up-62323); Pyron & McVaugh E.7480 (Up); J. K. Small s.n. [base of Little Stone Mtn.] (F-180766, W-56140); J. D. Smith s.n. [Stone Mtn.] (W-1323257); Whitaker 101 (Ca-882440); Wurdack s.n. [Stone Mtn., 9-26-13] (Cm). Dodge Co.: A. R. Moldenke 385 (Fg). Dougherty Co.: J. M. Gillespie s.n. [Oct. 6, 1925] (Du-153267). Floyd Co.: M. G. Mc Carthy s.n. [Rome] (Na-2223). Fulton Co.: P. O. Schallert 64, in part (S). Glynn Co.: Pyron & McVaugh E.7478 (Up); Van Halfern s.n. [Brunswick, 6-23-27] (Ga, Ga). Grady Co.: A. R. Moldenke 304 (Fg, S). Jasper Co.: Porter s.n. [Monticello, 1846] (Pr). Jeff Davis Co.: A. R. Moldenke 352 (Fg). Jefferson Co.: A. R. Moldenke 403 (Fg). Liberty Co.: Grimm s.n. [6-27-43] (Cm). Lowndes Co.: Quarterman 1266 (Va). McDuffie Co.: H. H. Bartlett 950 (Dm, Po-64818, Ur). McIntosh Co.: D. S. Correll 5442 (No-18320, We); H. H. Smith 2256 (F-247902, Ol). Miller Co.: Duncan & Hatcher 1707 (Ky). Monroe Co.: A. R. Moldenke 382 (Fg). Newton Co.: Dunham s.n. [Nov. 2, 1928] (F-861059). Oglethorpe Co.: Duncan 1426 (Bt-58291). Rabun Co.: Coken, Totten, & Harbison s.n. [Aug. 29, 1932] (Hi-59397, Hi-59398). Richmond Co.: Cuthbert s.n. [July 15, 1899] (Fl-20935), s.n. [July 20, 1899] (Fl-20932), s.n. [July 17, 1904] (Fl-20933). Rockdale Co.: Cronquist 4850 (Ca-789000, N, Tl), 5323 (N, Tl). Screven Co.: Ahles 54329 (Hi-201966); Boole 988 (Hi-183817); A. R. Moldenke 425 (Fg). Telfair Co.: A. R. Moldenke 360 (Fg). Thomas Co.: A. R. Moldenke 313 (Fg); Mrs. A. P. Taylor s.n. [Thomasville, June 12, 1903] (Oa), s.n. [Thomasville, Aug. 28, 1903] (Oa), s.n. [Thomasville] (Oa). Twiggs Co.: A. R. Moldenke 384 (Fg). Walker Co.: Ruth 229 (Ed, Ed). Washington Co.: A. R. Moldenke 399 (Fg). Wayne Co.: W. H. Duncan 7655 (Ca-771503, No-13894). Sapelo Island: W. H. Duncan 20155 (Hi-106314, Lb-42769). Tybee Island: Grosvenor s.n. (F-33316). County undetermined: Feay s.n. (Pa); J. A. Harris C.19847 [Turtle River] (Ca-610125); Keen & Keen s.n. [s. Ga.] (Pa). FLORIDA: Alachua Co.: Arnold s.n. [6/14/31] (Fl-20938); Collector undesignated s.n. (Io-127901); Gillman s.n. [Waldo] (F-150534); Kea s.n. [5/6/33] (Fl-20937); Loucks & West s.n. [Gainesville, 6-27] (Fl-20940); C. D. Mell s.n. [Gainesville, Dec. 23, 1906] (W-1584898); Stuhr s.n. [Gainesville, Nov. 1925] (Or-33128); A. D. Welch s.n. [Gainesville, April 19, 1927] (Io-127331). Bradford Co.: West &

Arnold s.n. [Hampton, 15 May 1940] (Fl--32357). Brevard Co.: A. A. Baldwin 13 (D--504178, Up--17067), 42 (Up--17064); Collector undesignated 226 (Gg--208927); P. O. Schallert 64, in part (Ur). Calhoun Co.: A. R. Moldenke 273 (Fg). Clay Co.: E. L. Braun s.n. [Green Cove Springs] (Cn). Collier Co.: C. C. Deam 65825 (No--21187); Muenschler & Muenschler 14211 (N); Scrull s.n. [Naples, 5/25/37] (Fl--27476). Columbia Co.: A. S. Hitchcock s.n. [Lake City] (F--234221); McCulloch 40 (Fl--209411, W--440438), s.n. [Lake City, June 17, 1901] (Ar--7506, Io--107150); Rolfs 183 (Ga, Ga, Ur), s.n. [Lake City, 9-17-93] (Ga). Dade Co.: Bowman s.n. [Miami, Aug. 1916] (H--26376, Up--70511); Buswell s.n. [July 22, 1936] (Bu); Cooper s.n. [Ft. Dallas, April 1859] (Ms); H. C. Cowles 24-8 [188] (Bt--39883, Ob), s.n. [Miami, Apr. '04] (Ur); Cratty s.n. [Miami, Jan. 29, 1933] (Io--140216); Duckett s.n. [Brickell Hammock] (W--1485633); Elder 323 (H--73168); A. P. Garber s.n. [Miami, June 1877] (Pa, Vt), s.n. [Miami] (D--569668, E--119278); Harshberger s.n. [August 15, 1911] (Up--63208), s.n. [December 1911] (Up--63380); Hawkins s.n. [1-25-28] (Fl--20939); A. S. Hitchcock s.n. [Miami, June--July 1898] (F--231737); Howell 872 (W--893578); Janish & Janish 552 (Du--392749); Macfarlane's party s.n. [Dec. 1901] (Up, Up); B. McAllister 92 (H--41471); Meredith s.n. [Miami] (D--624967); H. N. Moldenke 296 (Go, S, Up, Ur), 3728 (N); Mosier & Safford 303 (Ar--19781); Edw. Palmer 402 (E--119184); Safford s.n. [Simpson's Hammock] (W--1116874); Safford & Mosier 21 (W--1035857), 303 (W--1036142); J. K. Small 7324 (N), 7376 (N); Small & Carter 91 (D--570941), 651 (D--569957); Tidestrom 6959 (Ar--6959, Ar--10065, Ca--882445, H--67898, Mi--photo, W--751531). DeSoto Co.: Harshberger s.n. [June 3, 1912] (Up--63010), s.n. [Ft. Ogden] (D--560758); E. West s.n. [Lacy, 23 Sept. 1938] (Fl--153). Duval Co.: Curtiss 1971 [fls., June] (Mi, Mm, Mu--1648, Or--8840, P, Vi), 1971 [frs., Sept.] (Ca--25093, D--550100, E--119192, E--119305, F--148426, Mi, Mm--15350, Mu--1648, Or--8840, P, Vi, Vt), 4387 (Ca--58611, Du--90914, E--766880, W--218281), 4925 [fls., June 6] (Al, Ca--104990, Ed, F--147392, Io--38764, Mm--15353, W--224494), 4925 [frs.] (Mm--15323), 6189 [June 12, 1898] (Fl--20942, Hi--59394, Ur, Vt, Vu), 6189 [Aug. 30, 1898] (Fl--20942, Hi--59394, Ur, Vt, Vu); Fredholm 144 (Po--85766), 5294 (E--818111, W--717178); A. S. Hitchcock s.n. [Jacksonville] (F--231890); Keeler s.n. [vicinity of Mayport and Jacksonville] (Ol); Lighthipe 405 (Ob--50623), s.n. [South Jacksonville, June 17, '97] (Hi--59393), s.n. [South Jacksonville, Sept. 15, '97] (Hi--59393). Escambia Co.: Brinker 12 (I). Flagler Co.: West & Arnold s.n. [Flagler Beach, 18 Apr. 1940] (Fl--19257), s.n. [Andalusia, 10/10/40] (Fl--32844). Franklin Co.: Biltmore Herb. 1720b (Vu, W--332093), 1720f (E--119154, E--119155, W--335089); A. W. Chapman 40

(E--119173, E--119174), s.n. (E--119233, W--56142); Herb. Chapman 5980 (E--119310); McAtee 1764 (W--514798); Saurman 624 (W--1323258), 6459 (E--119183), s.n. [Apalachicola, 1867] (Pa), s.n. [Apalachicola] (Up--17062). Gadsden Co.: H. Foster 11 (Fl--20931). Glades Co.: Lovett 201 (H--38644). Hamilton Co.: West & Arnold s.n. [White Springs, 11 Apr. 1940] (Fl--32027). Hernando Co.: R. N. Jones s.n. [vicinity of Brooksville] (W--1086820). Highlands Co.: Hunnewell 10483 (Ua--36989). Hillsborough Co.: F. S. Blanton 6662 (Du--201148, En, H--22121, Hi--59400, Po--220816, S); S. M. Deam 2738 (Dm, Ok, Po--267684); A. P. Garber s.n. [Tampa] (F--139684, Us, W--265077); Ray, Lakela, & Patman 10133 (Hi--201400). Jefferson Co.: Herb. Exploration Party 1939 s.n. [Wacissa, 16 Mar. 1939] (Fl--30168); A. S. Hitchcock s.n. [June-July 1898] (E--119181, F--234220). Lake Co.: A. S. Hitchcock s.n. [vicinity of Eustis, June & July 1894] (Ka), s.n. [Eustis, 1894] (Fl--20944), s.n. [Eustis] (E--119234, F--233197); Nash 725 (Ca--104989, E--119236, Ed, F--38416, Mm--15352, Vu, W--228226), 2145 (W--252136, W--309640). Lee Co.: A. S. Hitchcock 272 (E--119144, F--101341, W--387306), s.n. [Myers, July--Aug. 1900] (Ka); C. Skottsberg s.n. [Fort Myers, 20.5.1935] (Go); J. P. Standley 492 (E--819012, F--473957, Po--174969, Ur, W--910889). Leon Co.: R. K. Godfrey 53359 (Hi--193406, N). Levy Co.: A. P. Garber s.n. [Nov. 1877] (Io, Vt); Janish & Janish 339 (Du--392743, N). Liberty Co.: West & Arnold s.n. [Torreya State Park, 22 July '40] (Fl--32355). Manatee Co.: J. H. Simpson 40 (D--526671, F--231129, Gg--163107, W--334922, W--334934); S. M. Tracy 7531 (Up--50863), 7534 (Ca--181892, Cm, E--119143, E--119324, E--119325, E--119326, Ed, F--120855, Io--48621, S, Tr, W--442191). Monroe Co.: A. D. Welch 1548 (Dp). Nassau Co.: A. S. Hitchcock s.n. [Fernandina] (E--119131). Orange Co.: Barrows s.n. [Winter Park, 1894] (Dt); Mac Elwee s.n. [Sanford] (D--517410); Pieters 405 (W--511659); Vesterlund s.n. [June 1889] (Us, Us, Us). Osceola Co.: Mearns 6 (W--391101); Singletary 151 (H--45917). Palm Beach Co.: G. L. Bates s.n. [Jupiter, 1889] (Fc--7573), s.n. [Jupiter] (W--561141); W. B. Fox s.n. [April 14, 1945] (We); A. S. Hitchcock 1489 (F--233566); E. West s.n. [Lake Worth, 6 Sept. 1939] (Fl--30748). Pasco Co.: Arnold s.n. [New Port Richey, 23 Sept. 1939] (Fl--31073); Carpenter s.n. [New Port Richey, October 22, 1936] (Vt); O'Neill s.n. [St. Leo] (E--953153). Pinellas Co.: S. M. Deam 1958 (W--513446); Tidestrom 7014 (W--751546); M. H. Williams s.n. [Pinellas Point] (D--636973). Polk Co.: O. E. Jennings s.n. [Fort Meade, late Dec. 1916] (Cm, Cm, Cm); Jennings, Jennings, & Jennings s.n. [Dec. 27, 1916] (Cm); McFarlin 3020 (Mi), 5573 (Mi); Ohlinger 185 (E--119152, F--230469, Fl--20943, Ga, Ur), s.n. [May 17, 1894] (Ga); J. D. Smith s.n. [Peace Creek] (W--1323261). Putnam Co.: West &

Arnold s.n. [East Palatka, 7 June 1940] (Fl--32351). Saint Johns Co.: L. C. Reynolds 311 (W--1323263); M. C. Reynolds s.n. [Dry sandy places] (Pr), s.n. (Up--17068); J. D. Smith 423 (W--1323262); West & Arnold s.n. [Crescent Beach, 7 June 1940] (Fl--32356). Saint Lucie Co.: A. C. Beal s.n. [Camp Walton, Jan. 1925] (Ur); H. N. Moldenke 21492 (Z). Seminole Co.: D. S. Correll 6367 (H--55787); P. O. Schallert 64, in part (B, B, Hi--54927, Ok, S, S). Suwannee Co.: Herb. Exploration Party 1939 s.n. [Ichtucknee Springs, 17 Mar. 1939] (Fl--30167). Volusia Co.: H. C. Beardslee 81 (Ob--97271); Hood s.n. [Orange City] (E--850163); B. H. Patterson s.n. [Nov. 27, '17] (Cm), s.n. [Nov. 26, 1919] (Cm). Walton Co.: Ashe s.n. [Mossyhead, 7/31/26] (Hi); E. G. Hume s.n. [6/2/38] (Fl--12358); Tyson 642 (Ur). Key Largo: M. Bush s.n. [Key Largo, Feb. 29, 1936] (Cm); Janish & Janish 495 [Key Largo] (Du--392747); H. R. Totten s.n. [December 28, 1940] (Hi--22705). County undetermined: G. H. Bates s.n. [1889] (Bl--42206, Ka, W--56141); A. W. Chapman 4 [South Florida] (E--119319), s.n. [Florida] (Gg--31966, Ok); Collector undesignated s.n. (Ky); Curtiss s.n. [1875] (F--34827, F--259936, F--259980); Torrey & Gray s.n. (Us). ALABAMA: Baldwin Co.: Demaree 35926 (St). Blount Co.: Eggert s.n. [Blount Springs] (E--119164); J. D. Smith 153 (W--1323256). Cherokee Co.: G. F. Freeman s.n. [Lookout Mtn., July 14, 1905] (Ka--67033). Cullman Co.: M. Morgan 91 (I). Elmore Co.: Koepper & Justice s.n. [near Millbrook, June 20, 1943] (Dp--38370). Etowah Co.: Eggert s.n. [Blaikireek Falls] (E--119163); G. N. Vasey s.n. [Gadsden, 1878] (Pr, Vt). Jackson Co.: A. R. Moldenke 774 (S). Jefferson Co.: A. S. Hitchcock s.n. [Birmingham] (F--234792). Lawrence Co.: A. R. Moldenke 767 (S). Lee Co.: C. F. Baker 8433 (E--119176), s.n. [Auburn, 9-20-96] (Po--64809); H. R. Baker s.n. [Auburn, 21 August 1929] (H--107723); Earle & Baker s.n. [Auburn, 7/6/1897] (E--119177, Ka, Ur), s.n. [7-16-1897] (Ob--50622), s.n. [Auburn, 9/20/1897] (Ka); L. H. Pammel s.n. [Auburn, June 3, 1921] (Io--10204); Pollard & Maxon 12 (W--442714). Madison Co.: Howell 505 (W--499630); W. H. Rhoades s.n. [near New Hope] (Hs); Shinek s.n. [Huntsville] (E--119175, F--78727). Marshall Co.: A. R. Moldenke 772 (S). Mobile Co.: Graves 649 (W--1085022); C. T. Mohr s.n. [Mobile, July] (Du--90915), s.n. [Mobile] (W--771910); F. H. Sargent s.n. [June 18, 1950] (Ok). Montgomery Co.: Koepper & Justice s.n. [near Montgomery, June 27, 1943] (Dp--38438); L. H. Pammel s.n. [Montgomery, May 30, 1921] (Io--102655). Tuscaloosa Co.: W. H. Rhoades s.n. [near Tuscaloosa, July 1926] (Bt--30605), s.n. [near Tuscaloosa, Aug. 1927] (N). Wilcox Co.: Buckley s.n. [July 1840] (Br). County undetermined: Buckley s.n. [July 1840] (Br), s.n. (Ca--379992); Peters s.n. [July 4, 1867] (Pa); G. N. Vasey s.n. [1878] (F--307197, Fc--502, Ka); Winchell s.n. (Ms.) MISSISSIP-

PI: Adams Co.: A. R. Moldenke 743 (B); Shimek s.n. [Natchez] (E—119190, F—78633). Claiborne Co.: A. R. Moldenke 741 (B); J. M. White s.n. [Martin] (Na—5711). Forrest Co.: F. A. Barkley 113 (Ok—18435). Hancock Co.: Bonck s.n. [June 9, 1940] (Tl). Harrison Co.: L. H. Pammel s.n. [Gulfport, Jan. 1924] (Io—110972); Pollard 1143 (E—119194, F—171238, W—271648); S. M. Tracy 4982 (Dm, E—119158, Ed, F—81041, Hi—59402, W—341065); Trécul 971 (P, P, P). Jackson Co.: Demaree 32091 (Ok); Diener 694 (Tl); Macfarlane & Goertz s.n. [June 12, 1905] (Up—39350), s.n. [Ocean Springs] (Vu); J. Skehan 22419 (Ur), 22420 (Ur), s.n. [Seymour & Earle 111] (E—942930, Ew, Gg—364183, Hi—59395, Lb—16421, Ur), s.n. [Ocean Springs, 6/7/95] (E—119232), s.n. [Ocean Springs, 8/15/95] (E—119193). Lafayette Co.: A. R. Moldenke 766 (S). Lauderdale Co.: Schuchert s.n. [Meridian] (W—288833). Lowndes Co.: A. R. Moldenke 763 (B). Noxubee Co.: A. R. Moldenke 761 (S). Panola Co.: Eggert s.n. [16 Sept. 1896] (E—119162). Pontotoc Co.: A. R. Moldenke 765 (B). Scott Co.: W. H. Rhoades s.n. [Lake, July 1927] (N). Sharkey Co.: A. R. Moldenke 757 (B). Simpson Co.: Holt 3 (W—587203). Warren Co.: W. H. Rhoades s.n. [Vicksburg, July 1927; H. N. Moldenke 17079] (Bt, N, St). Winston Co.: A. R. Moldenke 756 (B). County undetermined: Gerhart 59 (N); Montgomery s.n. [Nov. 1920] (E—859168). TENNESSEE: Anderson Co.: Wilkins 3713 (Up). Blount Co.: Jennison 37 (0, 0), 503 (0). Coffee Co.: C. Black s.n. [Manchester, June 20, 1930] (Go). Franklin Co.: Eggert s.n. [Cumberland Mtn.] (E—119166); Gattinger s.n. [Cowan] (0). Grundy Co.: W. H. Rhoades s.n. [Mt. Eagle] (Hs). Hamilton Co.: Anderson & Jennison 1329 (G), s.n. [Signal Mtn.] (0); Jennison & Anderson s.n. [Chattanooga] (E—978480); Underwood & Sharp 2383 (0). Knox Co.: G. Andrews s.n. [Lyon's View] (E—770172); Ruth 493 (E—119161), 498 (W—345679), 515 (E—119147), s.n. [Aug. 25—Sept. 10, 1898] (Ur). Lauderdale Co.: Sharp, Fairchild, Clebsch, & Clebsch 7954 (No—16494). Lawrence Co.: Sharp, Clebsch, & Clebsch 20 (N). Marion Co.: A. R. Moldenke 776 (S). Morgan Co.: Coffman 91 (W—478876), s.n. [Oct. 1889] (W—478875). Shelby Co.: C. E. Moore 79 (W—1466116). MISSOURI: Taney Co.: J. A. Steyermark 69453 (S, Ur). ARKANSAS: Arkansas Co.: Kellogg s.n. [Arkansas Post] (E—119322, E—879215). Ashley Co.: Demaree 23903 (Ca—882437, N). Baxter Co.: E. J. Palmer 4771 (E—717371, E—717372). Bradley Co.: Demaree 13565 (Ky, N), 18309 (N), 19535 (N). Cleburne Co.: E. J. Palmer 6981 (E—752702, E—787155). Crawford Co.: Demaree 4502b (E—960171), 15277 (N, Se—55736); McKinney 91 (Au); E. J. Palmer 22199 (W—1241148); Shearer s.n. [Aug. 28, 1919] (Vi). Desha Co.: Howell 613 (W—615530). Drew Co.: Demaree 13443 (N). Faulkner Co.: E. S. Ford 98 (Hi—203728, It), 119 (It). Garland Co.: V. H. Chase 9753 (Ur); Demaree 15361 (N, Ok); Earll s.n. [Hot

Springs] (W--491345); Letterman s.n. [Hot Springs] (D--563760, E--119167, E--119171, E--776513, W--985733); Meek s.n. [Hot Springs, 8-11-89] (Io--71116); W. H. Rhoades s.n. [Hot Springs] (Hs); R. Runyon 1203 (N), 1461 (W--1567994); Scully 982 (Sd--23724); Trelease s.n. [Hot Springs] (E--119179); Tweedy 488 (Au). Hempstead Co.: Bush 3837 (E--119316); Demaree 21506 (N). Hot Spring Co.: Demaree 18883 (Bt--55321, Io--152224, Ok); Trelease s.n. [Magnet Cove] (E--119178). Howard Co.: Demaree 9742 (Po--209142). Izard Co.: Demaree 23395 (N); Hubricht B.2277 (N). Jefferson Co.: Demaree 13937 (N). Johnson Co.: Demaree 19977 (N). Lee Co.: Demaree 12973 (Du--367064, N). Logan Co.: Welch 1194 (Dp, Lu); Mrs. H. S. Young s.n. [June 21, 1925] (Cm). Marion Co.: E. J. Palmer 6037 (E--755443, W--588519). Miller Co.: O. M. Clark 3979 (E--1006524); Demaree 24491 (N); Heller & Heller 4158 (E--119180, W--333340); Letterman s.n. [Texarkana] (D--563883, E--770485, W--985731); Pringle s.n. [Texarkana, 30 July 1886] (Vt). Montgomery Co.: Demaree 9603 (E--1034117, O), 39945 (Lb--53420). Nevada Co.: Hollister 28 (W--587722). Phillips Co.: Demaree 19760 (Ca--882438, Gg--316191, N). Pike Co.: L. H. Pammel s.n. [6-10-1911] (Io--81687), s.n. [6/11/1911] (Io--55068). Pope Co.: G. M. Merrill 21 (Cp, Du--246556, E--1030004). Pulaski Co.: R. J. Bailey s.n. [Oct. 17, 1935] (Cm), s.n. [Oct. 24, 1936] (Cm), s.n. [Nov. 1936] (Cm); Coville 13 (W--210608); Demaree 37717 (Lb--46747); Eggert s.n. [7-3-94] (E--119159, E--119160, E--119170, E--119191, Po--64808); Engelmann 205 (E--119303, E--119304); Hasse 2063 (D--586827), s.n. [Little Rock, June 1886] (Al, Ca--192607, Du--90913); Letterman s.n. [Little Rock] (E--770252, W--985732). Saline Co.: J. M. Greerman 4301 [Herb. Drushel 5311] (E--902885, Ur). Sebastian Co.: Bigelow s.n. [Fort Smith] (W--56129). Sevier Co.: Brinkley 38 (F--896442), 338 (Au, Au, F--899057, N); Fassett 27677 (Vi). Washington Co.: P. V. Beck 85 (Ok). Yell Co.: Demaree 18197 (N). County undetermined: Buchholz s.n. [central Arkansas] (E--892615). LOUISIANA: Allen Par.: A. R. Moldenke 711 (S). Avoyelles Par.: A. R. Moldenke 727 (S). Beauregard Par.: A. R. Moldenke 710 (S). Bienville Par.: A. R. Moldenke 684 (B). Bossier Par.: A. R. Moldenke 680 (B); Penn s.n. [Aug. 26, 1941] (T1); Shoop s.n. [Benton, July 20, 1935] (F--902419); Trelease s.n. [Aldenbridge] (E--119189). Caddo Par.: Moldenke & Woods 555 (S). Calcasieu Par.: Allison 67 (W--514026), 319 (E--119323, F--286541, W--514121); A. Chase 6095 (Mi, W--503449); Gander 7601 (Sd--25488); K. K. Mackenzie 531 (Dt, E--119157, E--119329, Ka); Solereder s.n. [Lake Charles, Sept. 1833] (Mu--4111). Catahoula Par.: A. R. Moldenke 744 (B). DeSoto Par.: A. R. Moldenke 692 (S). East Baton Rouge Par.: S. M. Lewis s.n. [July 15, 1951] (Ur); Romm s.n. [July

15, 1951] (Ur). Evangeline Par.: Ewan 19342 (Tl); A. R. Moldenke 713 (S). Grant Par.: Ewan 17495 (Tl); A. R. Moldenke 725 (B). Iberville Par.: Bush 362 (E--119156, E--129945, W--318509). Jefferson Par.: H. P. Riley s.n. [Grand Isle, May 30, 1938] (Se--47504). La Salle Par.: A. R. Moldenke 745 (S). Livingston Par.: Correll & Correll 9167 (H--75520, N). Natchitoches Par.: L. E. Fox 406 (Nc), 411 (Fx); A. R. Moldenke 695 (S); E. J. Palmer 7924 (D--693548, E--793709, Gg--182157). Orleans Par.: T. Drummond 254 bis (Lu), 254 ter (Ed, Us), s.n. [vicin. New Orleans, 1832] (Lu), s.n. [New Orleans, 1833] (Ed, Ed, Lu). Rapides Par.: C. R. Ball 541 (E--119145, F--93548, W--382819); A. R. Moldenke 726 (S). Red River Par.: A. R. Moldenke 691 (S). Sabine Par.: L. E. Fox 410 (Fx); A. R. Moldenke 696 (S); Shinners 20235 (Ca--46300). Saint Mary Par.: Ewan 18869 (Tl). Saint Tammany Par.: Anect 67 (W--1087035); Arsène 11376 (W--1031498); Bomhard s.n. [Mandeville, Dec. 8, 1928] (Cm); Ewan 17458 (Tl), 17681 (Tl); A. R. Moldenke 246 (Fg, Z); H. P. Riley s.n. [Mandeville, Oct. 25, 1936] (Se--49401). Union Par.: R. Gaines s.n. [6-23-50] (Ca--86357). Vernon Par.: A. R. Moldenke 702 (S). Washington Par.: D. V. Baxter s.n. [Bogalusa, 1931] (Mi); A. G. Watkins s.n. [6-4-33] (Tl). Webster Par.: A. R. Moldenke 683 (B). West Carroll Par.: Moseley s.n. [Holly Ridge] (F--282161). West Feliciana Par.: Ewan 18746 (Tl). Avery Island: Thieret 16087 (W--2422076). Jefferson Island: Thieret 15945 (W--2422031). Weeks Island: Thieret 15934 (W--2422028). Parish undetermined: T. L. Andrews 49 (Io--107277); Barbe s.n. [Basse Louisiana, 1839] (P); Collector undesignated s.n. [Herb. Jussieu 1061] (P, P); Prat s.n. [Louisiana; Herb. Jussieu 5061] (P); Teinturier s.n. [1836] (Dc). OKLAHOMA: Bryan Co.: W. S. Blain 285 (W--1623326), s.n. [Durant, July 8, 1935] (Bt--29669); Bragg 95 (St--15607); E. J. Palmer 10441 (Du--205596, E--804539, Gg--31971). Choctaw Co.: O. F. Hay 103 (Ok); Kilgore 147 (St--13738); E. J. Palmer 8345 (E--784183, E--793710, Gg--31967, Po--220832). Cleveland Co.: D. Simpson s.n. [6-23-38] (Ok). Latimer Co.: M. Cox 62 (St--17514); G. J. Goodman 2047 (E--1087898, N, Ok--10236); A. Hill 83 (St); C. W. Hodges 81 (St--17513); Wallis 7530-1 (St). LeFlore Co.: O. W. Blakley 1498 (E--782299), s.n. [Stevens 1498] (Ok); Demaree 15723 (N), 16036 (N, Ok); Ortenburger s.n. [Kiamitchi River] (W--1365042); E. J. Palmer 20550 (W--1118229), 44086 (N); G. W. Stevens 2688 (Du--67981, E--781217, Ok, St--9178, Ur, W--910034); Stratton 4832 (St--26146, St--26147). Love Co.: Goodman & Rice 5678 (Ok). Marshall Co.: Alder s.n. [July 2, 1950] (Ok); Basler s.n. [Island no. 2, July 2, 1950] (St); G. J. Goodman 1412 (S), 5674 (Ca--81900, Ok, Ur), 6015 (Ok); G. Morgan 64 (S); Starks s.n. [25 July 1950] (Ok); Waterfall 11856 (St), 12299 (St).

McCurtain Co.: Estes 101 (St--17488); M. Hopkins 2883 (Ok, St--14799); Hopkins & Cross 2338 (Ok); Jamison 62 (St--17879); Little & Olmsted 414 (Ok--10232), 1507 (Ok--10233), s.n. [June 28, 1930] (Ok--10234); Neese 102 (St--18301); Nelson, Nelson, & Goodman 5402 (Au, Ok), 5419 (Ok); G. T. Robbins 2648 (Ok), 2660 (Ok), 2826 (Ca--966178); C. C. Smith 908 (Ba, Ok); Stratton 573 (E--946679); Willson s.n. [July 9, 1955] (Ok). Pushmataha Co.: Herb. C. Thomas s.n. [6-15-1937] (Ok); Hopkins & Cross 2218 (Ok); Waterfall 302 (St--9176, St--9177, St). Sequoyah Co.: Wallis 6140 (St), 7996 (St); Waterfall 9533 (St). Tulsa Co.: Herb. Bebb s.n. [bank of Salt Creek] (Ok). County undetermined: C. C. Parry s.n. [Indian Territory, 1878] (Io). TEXAS: Angelina Co.: Boon s.n. [8-7-34] (Au), s.n. [8-10-1934] (Au), s.n. [Aug. 12, 1934] (Au, Au), s.n. [Sept. 1934] (Au, Au). Aransas Co.: Cory 45742 (Au); F. B. Jones 4073 (Ww). Austin Co.: H. Wurzlow s.n. [Industry, 1891] (Ur). Bastrop Co.: C. C. C. Plant Project s.n. [Bastrop State Park, Nov.--Dec. 1936] (Au); Lundell & Lundell 10348 (Ld, Mi); Tharp 253 (Au, Mi), s.n. [Bastrop State Park, Fall 1936] (Mi), s.n. [6-15-37] (Mi). Bexar Co.: Berlandier 1678 (P); Biltmore Herb. 1720j (Dm); Bush 818 (E--119148); Clare 273 (Mi); A. A. Heller 1832 (Ca--104988, E--119235, Ed, Mn--15351, Se--14918, W--213988); G. Jermy 121 (W--315720); J. Jermy 48 (W--501895); Metz 273 (Ms, N, Se--57929), s.n. [San Antonio, Aug. 28, 1931] (Dp); C. C. Parry s.n. [En route from San Luis Potosi to San Antonio, Texas, August 1878] (Io); Wilkinson 12 (E--119146), 119 (E--119187). Blanco Co.: E. J. Palmer 12862 (Ca--425599, E--827554, Gg--31968). Bowie Co.: Milligan s.n. [Dalby Springs] (W--503756); Ward s.n. [west of Texarkana] (W--147597). Brazos Co.: Bain 19 (O); W. S. Jennings 71 (Ok); L. H. Pammel s.n. [College Station, July 1888] (Io--1201), s.n. [College Station, Jul. 26, 1921] (Io--102010), s.n. [College Station] (E--118818, E--119300); Reeves 188 (N, N). Camp Co.: Moldenke & Woods 559 (S). Cass Co.: Cheng s.n. [Atlanta, 6-14-26] (Au). Chambers Co.: G. L. Fisher 7 (F--647719). Cherokee Co.: Trelease s.n. [Forest] (E--119231). Colorado Co.: E. J. Palmer 6592 (E--755442, W--588658). Comal Co.: Lindheimer 297 (E--119230, E--119309, Ka), 1067 (Au, Br, Ca--146951, D--535535, E--119311, Ed, F--218267, Me, Me, Mu--4056, Na--29097, Ok--18037, Up--48982, W--502440). Dallas Co.: Dapprich 7776 (Sm); C. L. Lundell 13930 (N); Lundell & Lundell 7048 (Au, Mh, Mi, N, N); Reverchon 745 (E--119150, E--119330), 3905 (E--119172, E--119331, W--501158), s.n. [Feb. 1872] (E--119318), s.n. [Dallas, 1876] (F--815194); Ruth 1333 (Sm); Shinners 8482 (Ca--733262, N, Sm); Stephenson s.n. [June 19, 1928] (W--1432573). DeWitt Co.: C. H. Mueller 8028 (N, Sm, St); M. Riedel s.n. [6-3-42] (Au). Ellis Co.:

Moldenke & Woods 576 (S); Tharp s.n. [Onion Creek, 6-18-32] (Au, Au). Fayette Co.: Forshey s.n. [Rutersville, 1857] (Ka--95509); Matthes 20 (Dr, Ol). Freestone Co.: Lundell & Lundell 12939 (N). Goliad Co.: C. B. Williams 50 (D--628948, N). Gonzales Co.: Mc Bryde M.517 (Nt), s.n. [6/29/31] (Nt); Normand s.n. [5-31-28] (Au, Au); E. D. Schulz 2666 (La), s.n. [Ottine, Aug. 1924] (Wi), s.n. [Gonzales] (Wi, Wi); Tharp s.n. [Palmetto State Park, 6-30-39] (N). Grayson Co.: C. Richardson 15 (Au), s.n. [Denison, Oct. 17, 1933] (E--1072509); Whitehouse 17487 (Mi, N). Gregg Co.: C. L. York s.n. [Fall 1937] (Au). Guadalupe Co.: Groth 192 (Dt, F--181881, Gg--31970, Io--75833, W--717779). Hardin Co.: Lundell & Lundell 11537 (N). Harris Co.: Armer s.n. [Houston, July 1927] (Sm); Boon 341 (Au), 378 (Au, N); O. Degener 5233 (Ms); G. L. Fisher 88 (W--503159), s.n. [Herb. Banker 2307] (N), s.n. [Houston, June 2, 1912] (Ca--882448, Ew), s.n. [June 9, 1912] (Vi), s.n. [Houston, Aug. 1, 1912] (Ew), s.n. [Houston, Aug. 5, 1912] (Vu), s.n. [Aug. 30, 1912] (Vi), s.n. [Houston, June 2, 1913] (Fs), s.n. [Houston, June 2, 1914] (Vu), s.n. [Aug. 15, 1915] (Gg--200881), s.n. [Houston, Sept. 14, 1930] (Bt--37637), s.n. [Houston, Aug. 4, 1936] (Fs), s.n. [Houston, June 14, 1947] (Go); O. Mueller s.n. [Rose Hill, 8/28/1929] (Wi); L. H. Pammel s.n. [Houston, Jul. 27, 1921] (Io--104611); Tharp s.n. [9-14-33] (Au, Au); Tweedy 118 (W--147598). Harrison Co.: A. R. Moldenke 676 (S). Henderson Co.: B. B. Harris s.n. [7-10-27] (Nt), s.n. [8-6-27] (Nt); A. R. Moldenke 667 (S). Hill Co.: Shimmers 10537 (Tl). Hopkins Co.: Moldenke & Woods 566 (S). Jackson Co.: A. R. Moldenke 204 (Fg, S). Jasper Co.: Correll & Correll 12536 (Sm); Cory 49833 (N, Sm); E. R. H. s.n. [Kirbyville, Dec. 21, 1902] (Io--82905). Jefferson Co.: Hook s.n. [Beaumont, Sept. 10, 1932] (Au, Au); A. R. Moldenke 225 (B, Fg, S). Liberty Co.: V. Lehmann s.n. [Cleveland, 6-2-34] (Au). Marion Co.: Moldenke & Woods 554 (S). McLennan Co.: Pace 241 (E--119312); Posey 10 (Nt); L. D. Smith 615 (St). Montgomery Co.: Dixon 247 (F--238186); Warner 1 (Hu). Morris Co.: Moldenke & Woods 556 (S). Nacogdoches Co.: Crausley s.n. [July 18, 1944] (Au); Lundell & Lundell 9615 (Ld, Mi, N), 9653 (Ld, Mi, N). Orange Co.: Kirn s.n. [Orange, 10-18-22] (Wi), s.n. [Orange, 10-27-22] (Wi), s.n. [Orange, Oct. 27, 1927] (Wi); M. S. Young s.n. [Orange, 4/19/18] (Au). Polk Co.: Girvin 101 (Au); Tharp, Turner, & Johnston 54713 (St). Raines Co.: A. R. Moldenke 668 (S). Red River Co.: E. Adams 19 (Nt). Robertson Co.: F. A. Barkley 13590 (Au, Ca--882444, N, Ok, St). San Augustine Co.: Crocket s.n. (W--500016). San Patricio Co.: F. B. Jones 2139 (Ww). Shelby Co.: H. B. Parks Jr. 2310 (Au). Stephens Co.: M. L. Grant 8493 (Ok). Tarrant Co.: Ruth 198 (Au), 1333 (La, Nt, O, W--1288388), s.n. [Hand-

ley, Sept. 12, '10] (Au), s.n. [July 20, 1930] (0); Whitehouse 16158 (Mi, N). Travis Co.: Bogusch 69 (Po--161327); Carsner & Studhalter 4613 (Au); Krodel 35 (Au, Au); McKee & Wesley 3860 (Au); R. H. Painter s.n. [Austin, 8/6/23] (Ka--70282); H. B. Parks s.n. [Aug. 20, 1929] (Wi, Wi); R. B. Payton 54 (Au); Riperton & Barkley 14524 (Au, Ca--882446); E. D. Schulz s.n. [Austin, 7-11-1920] (Wi), s.n. [Hamilton Pool, 7-11-1920] (Wi), s.n. [10 mi. s. of Austin, 8-13-1921] (Wi), s.n. [Austin, August 1921] (Wi, Wi); Strandtman s.n. [July 17, 1941] (Au); L. C. Taylor 3038 (Ca--697811); Tharp 44416 (Au), s.n. [Austin, 7-21-40] (Ca--882443, N, Pl--151544, Se--75614, Vi), s.n. [Austin, 8-31-41] (Ca--882441, N, Sm), s.n. [Onion Cr., 10-30-41] (Ca--882442); York & Wolf 46 (Au). Trinity Co.: Goodrum s.n. [June 1936] (Au). Upshur Co.: A. R. Moldenke 674 (B, Fg). Van Zandt Co.: Bass 18 (Nt); A. R. Moldenke 671 (S); Sides 7 (Nt); Whitehouse 16452 (Mi, N). Victoria Co.: Ferris & Duncan 3258 (Du--125410, E--893436, Gg--31969). Walker Co.: Dixon 32 (F--237968); C. Hartmann s.n. [Huntsville, summer 1912] (Au, Ca--882447). Waller Co.: E. Hall 438 (E--119182, F--454359, Pa, Po--85767, W--56131). Washington Co.: C. C. Albers 32022 (Au); Brackett 253 (Au), s.n. [7/1/39] (Au). Wilson Co.: Edw. Palmer 1054 (Pa, W--56130); Parks & Cory 15121 (Tr), 15123 (Tr), 15124 (Tr). Wood Co.: A. R. Moldenke 669 (S). County undetermined: Collector undetermined 74 (E--119169); Eggert s.n. (E--119168); Gaut 228 (W--504928); Lindheimer 134 (E--119302, E--119306, E--119307); Schlottmann s.n. [1886] (Ah); Tharp s.n. (Io--104905); M. J. White xxxix [Chronister] (Au).

BERMUDA ISLANDS: Main: Brown & Britton 222 (Ca--370289, D--511280, F--203802, Lu, Up--55080, W--524873); O. Degener s.n. [Paget Marsh, Aug. 13, 1921] (Ms). CUBA: Pinar del Río: Acuña 10715 (Es); Britton, Britton, Earle, & Gager 6764 (W--697048); Earle 751 (F--285879); Ekman 10788 (N); León 4400 (Ha), 5106 (Ha), 17897 (Ha); León & Shafer 13607 [Shafer 3215] (Ha); Marie-Victorin & Alain 373 (Vi, Vi); O'Donovan 5306 (Po--64806); Palmer & Riley 547 (W--372985); Shafer 10904 (E--118817, F--325328, W--699179); Van Hermann 864 (F--185454, Po--64805, W--845265), 3165 (Ca--140133, F--200724); Zarragoitia 5306 (F--185737, W--845510). Province undetermined: C. Wright 231 1/2 [Herb. Sauvalle 1772] (Hv), 3168 [1860--1864; Herb. Sauvalle 1772] (Hv), 3168 [1865; Herb. Sauvalle 1772] (Hv, Hv), 3168 [Pulneios] (Pa), 3168 (E--119130, W--56138, W--1361168). ISLA DE PINOS: Britton, Britton, & Wilson 15004 (Cm, F--459550, W--793242); León 17897 (N); Palmer & Riley 1080 (W--372982); A. A. Taylor 230 (F--128571, W--426935). CULTIVATED:

Alabama: Justice s.n. [Montgomery, June 28, 1942] (Ba). Belgium: Herb. Martius s.n. (Br); M. Martens s.n. [h. b. Lov. 1838] (Br);

Lejeune s.n. [h. Leod.] (Br). California: Bellue s.n. [Sacramento, Jan. 1942] (Gg--293960). Cuba: J. G. Jack 8664 (Gg--237835). District of Columbia: Vasey s.n. [Agricultural grounds, Washington] (W--56133). Florida: Wedding 115 (Ar--19783). France: Herb. Harvey s.n. [h. R. P. 1819] (Du--166513); Herb. Hort. Paris. s.n. (B); Herb. Monsp. s.n. [1807] (Dc). Georgia: Tidestrom 4112 (Ar--19784), A.112 (Ar--715823). Germany: Herb. Bütner s.n. (B); Herb. Hort. Acad. Helmstedt s.n. [Aug. 1767] (Ed); Herb. Hort. Bot. Monac. s.n. (Mu--1426); Herb. Hort. Sprengel s.n. (B); Herb. A. W. Roth s.n. [hort. Bremen] (B); Herb. Schwägrichen s.n. (Mu--1424). Italy: Herb. Prager 18668 (Gg--31964); Turra s.n. [Vicenza] (S). Java: Herb. Hort. Bot. Bogor. XV.JA.XXIX.5 (Bz--26364). Kentucky: Short s.n. [Aug. 1835] (Ky--1773). Missouri: Herb. Ames s.n. [Saint Louis] (Oa). North Carolina: W. C. Coker s.n. [Arboretum, October 21, 1944] (Hi--27472); V. Matthews s.n. [Arboretum, July 10, 1934] (Hi); Radford & Stewart S.56 (Hi--34969), S.103 (Hi--34982); Smith & Stewart S.103 (Hi). Oklahoma: R. E. Miller s.n. [Stratton 4949] (St--26148). Spain: Collector undesignated 20 (Q), 21 (Q). Texas: C. M. Parker 4792 (Au); Studhalter 4193 (Au). LOCALITY OF COLLECTION UNDETERMINED: Banks s.n. [U.S.A.] (S); Bigelow s.n. [Camp no. 6, July 30, '53] (W--56132); Collector undesignated 42 (Au), s.n. [probably Wichita, Kans.] (Io--108282), s.n. (Au, Au, Dc, Dc, Dc, Du--166514, Mu--1685, Pr); Curtiss s.n. [Southern States, 1875] (Ka, Ky); Dean s.n. (E--119296); Dufour s.n. (Mu--946); Fraser s.n. [Carolina] (Dc); Herb. Bernhardi s.n. (E--119242); Herb. Buckley s.n. (E--119301); Herb. Chapman s.n. [Southern Flora] (Ms); Herb. Hort. Bella s.n. (B); Herb. Jesup s.n. [Southern States] (Dt); Herb. Lamarck s.n. (P); Herb. Link s.n. (B, N--photo, S--photo, Z--photo); Herb. Riehl s.n. (E--119315); Herb. Schimper s.n. (Mu--1425); Herb. Schmiedelian s.n. (Mu--943); Herb. Schreber s.n. (Mu--944, Mu--945); Herb. Zuccarini s.n. (Mu--1686); Joor s.n. (E--119188); Leconte s.n. [Amer. sept.] (P); Lindley s.n. [U. States] (P); L. H. Pammel s.n. [seedlings, March 1927] (Io--126838); Plée 365 (P); Tharp s.n. (Au). MOUNTED ILLUSTRATIONS: Anon., color plate (N); Buchhoz, Herb. Color. Amer. pl. 36. 1783 (Cb); Buchhoz, Hist. Nat. Reg. Vég. 6, dec. 10, pl. 5. 1775 (P, P).

CALLICARPA AMERICANA var. LACTEA F. J. Muller, Am. Gard. 10: 463 [as "C. americana lactea"]. 1889; Moldenke in Fedde, Repert. Spec. Nov. 39: 316. 1936.

Additional & emended synonymy: Callicarpa lactea F. J. Muller, Am. Gard. 10: 463. 1889. Callicarpa americana var. alba Hort. ex Rehd. in L. H. Bailey, Stand. Cycl. Hort. 2: 628. 1914. Callicarpa americana var. alba Clute, Amer. Bot. 31: 29. 1925. Callicarpa

americana var. alba Rehd., Man. Cult. Trees, ed. 1, 776. 1927. Callicarpa americana var. alba Berckmanns ex Moldenke in Fedde, Repert. Spec. Nov. 39: 316, in syn. 1936; Prelim. Alph. List Invalid Names 9, in syn. 1940. Callicarpa americana f. leucocarpa Standl. ex Moldenke, Suppl. List Invalid Names 1, in syn. 1941. Callicarpa americana var. albocarpon Fox ex Moldenke, Alph. List Invalid Names Suppl. 1: 3, in syn. 1947. Callicarpa americana f. lactea (F. J. Muller) Rehd., Bibl. Cult. Trees 584. 1949. Callicarpa americana var. leucocarpa Standl. ex Moldenke, Résumé 241, in syn. 1959. Callicarpa americana alba L. H. Bailey ex Moldenke, Résumé Suppl. 14: 6, in syn. 1966.

Bibliography: F. J. Muller, Am. Gard. 10: 463. 1889; C. Mohr, Contrib. U. S. Nat. Herb. 6: 695. 1901; F. S. Earle, Bull. Ala. Agr. Exp. Sta. 119: 101. 1902; C. K. Schneid., Illustr. Handb. Laubholz. 591. 1911; Rehd. in L. H. Bailey, Stand. Cycl. Hort. 2: 628. 1914; Clute, Amer. Bot. 31: 29. 1925; Rehd., Man. Cult. Trees, ed. 1, 776. 1927; L. H. & E. Z. Bailey, Hortus 111. 1930; L. H. Bailey, List Florists Handl. Verbenac. mss. 1935; Moldenke in Fedde, Repert. Spec. Nov. 39: 303, 306, & 316—317 (1936) and 40: 117—119, 121, 123, 127, & 128. 1936; Moldenke, Geogr. Distrib. Avicenn. 2—4 & 35. 1939; Rehd., Man. Cult. Trees, ed. 2, pr. 1, 804 & 932. 1940; Moldenke, Prelim. Alph. List Invalid Names 9 & 11. 1940; Moldenke, Suppl. List Invalid Names 1. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 4, 5, 12, 71, & 86. 1942; Moldenke, Alph. List Invalid Names 8 & 9. 1942; Moldenke in Lundell, Fl. Texas 3 (1): 77 & 79—80. 1942; Moldenke, Known Geogr. Distrib. Verbenac. Suppl. 1: 1. 1943; Moldenke, Phytologia 2: 73, 88, & 93 (1945) and 2: 155. 1946; Moldenke, Alph. List Cit. 1: 19, 20, 37, 158, 175, 202, 203, 209, 305, & 309. 1946; Moldenke, Phytologia 2: 327. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 3. 1947; Moldenke, Bol. Soc. Venez. Cienc. Nat. 11: 41. 1947; Moldenke, Wrightia 1: 245. 1948; Moldenke, Alph. List Cit. 2: 327, 421, 426, 509, 526, & 574 (1948), 3: 678, 706, 721, 725, 789, 798, 841, & 869 (1949), and 4: 1025, 1246, & 1252. 1949; Rehd., Bibl. Cult. Trees 584. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 7—10, 18, 22, 156, & 176. 1949; Bean in Chittenden, Roy. Hort. Soc. Dict. Gard. 1: 359. 1951; Moldenke, Phytologia 3: 450. 1951; Krüssman, Handb. Laubgeh. 1: 254. 1959; Moldenke, Résumé 9—12, 14, 22, 23, 27, 213, 241, 244, & 443. 1959; Rehd., Man. Cult. Trees, ed. 2, pr. 9, 804 & 932. 1960; Moldenke, Résumé Suppl. 3: 3 & 5 (1962) and 4: 1 & 10. 1962; Li, Morris Arb. Bull. 14: 5. 1963; Moldenke, Résumé Suppl. 14: 1 & 6. 1966.

Recent collectors describe this plant as a shrub, 1 m. tall, the flowers white, and the fruit shining, white or milky-white to snowy-white or pearly-white. Clute (1925) states that both the flowers and fruits are white. His var. alba is based on an unnumbered collection made by H. A. Rankin in Columbus County, North Carolina. Matthews also avers that the flowers are "pure-white" as well as the fruit. Earle (1902) says "a form with white fruit occurs" in Alabama. A note on W. C. Coker s.n. [Arboretum, October 21, 1944]

makes the following amazing claim: "White-berried form and purple-berried form from same root" -- the specimen consists of just two branchlet tips, the fruits on both of which have dried identically as those of the normal form. Ewan notes "growing with the usual red-purple shrubs" in Evangeline Parish, Louisiana.

Callicarpa americana var. alba Berckmanns is based on F. S. Earle s.n., collected at Auburn, Lee County, Alabama, on September 25, 1897, and deposited in the herbarium of Kansas State College; var. albo-carpon Fox is based on L. E. Fox 2226 from Natchitoches Parish, Louisiana, deposited in the Fox herbarium; and f. leucocarpa is based on G. L. Fisher s.n., collected at Anahuac, Chambers County, Texas, on September 18, 1931, and deposited in the herbarium of the Chicago Natural History Museum.

The variety was collected 5 miles south of Silsbee, Hardin County, Texas, on September 15, 1936, by H. B. Parks & V. L. Cory and 2 1/2 miles northwest of Shepperd, San Jacinto County, on September 12, 1936; at Sebring, Florida, by J. B. McFarlin; at Anahuac, Chambers County, Texas, on September 18, 1931, by G. L. Fisher; in a pine forest northwest of Jasper, Jasper County, Texas, September 10, 1942, by C. L. Lundell; in old fields at Lake City, Columbia County, Florida, by P. H. Rolfs; at Rustin, Lincoln Parish, Louisiana, in September, 1914, by R. S. Cocks; at Greenville, Pitt County, North Carolina -- "apparently a great rarity" -- on September 30, 1926, by S. N. Crisp; and in the Glen Saint Mary Nursery, Baker County, Florida, on August 20, 1935, by L. H. Bailey and by H. H. Hume.

Dr. Edgar T. Wherry, in a letter to me dated January 9, 1937, states that in about 1920 he visited the Berckmanns place in August, Georgia, and that the widow of the founder pointed out C. americana var. lactea as one of the most interesting plants there. On September 11, 1936, he collected the variety about 3 miles northwest of Robert Post Office, which is just east of Hammond, Tangipahoa Parish, Louisiana. It was growing with the typical form of the species, although the bush of albino nature was obviously weaker, lower, and paler.

Collectors have found the plant growing in old fields and on dry hills, at 550 feet altitude, flowering in July, and fruiting from August to October. Bailey (1935) states that it is offered to the horticultural trade by Sanford. Common names recorded for it are "French mulberry" and "white-fruited callicarpa". In all, 15 herbarium specimens, including type material of most of the names involved, and 6 mounted photographs have been examined by me.

Additional & emended citations: NORTH CAROLINA: Orange Co.: Le Clair s.n. [Mason Farm, July 15, 1937] (Hi--6300), s.n. [Mason Farm, July 1937] (Hi--8985). Pitt Co.: Crisp s.n. [Greenville, Sept. 30, 1926] (Hi--59407). SOUTH CAROLINA: Beaufort Co.: Mellichamp s.n. [Bluffton] (E--119216). FLORIDA: Baker Co.: H. H. Hume s.n. [Glen St. Mary, 20 Aug. 1935] (Fl--20936). Columbia Co.: Rolfs 183 (F--228793), 184 (E--119151, F--228794, Fl--20945, Ur).

Highlands Co.: McFarlin 6468 (Mi), 9746 (N). ALABAMA: Lee Co.: F. S. Earle s.n. [Auburn, Nov. 1878] (Cm), s.n. [Auburn, 9-25-1897] (Ka), s.n. [Auburn, Nov. 1898] (F-170730, W-344528). ARKANSAS: Hot Spring Co.: Demaree 16543 (N, Ok, Se-55743). LOUISIANA: Evangeline Par.: Ewan 19360 (Tl). Lincoln Par.: Cocks s.n. [Rustin, Sept. 1914] (Tl). Natchitoches Par.: L. E. Fox 2226 (Fx). TEXAS: Chambers Co.: G. L. Fisher 6 (F-647696), s.n. [Anahuac, Sept. 18, 1931] (Du-283952, Ew, Wi). Hardin Co.: Parks & Cory 19988 (Tr), 19989 (Tr). Jasper Co.: C. L. Lundell 11890 (Sm). San Jacinto Co.: Parks & Cory 19650 (Tr). Upshur Co.: E. J. Palmer 31738 (E-956795). CULTIVATED: Florida: L. H. Bailey s.n. [Glen St. Mary Nursery, Aug. 20, 1935] (Ba). North Carolina: V. Matthews s.n. [July 11, 1934] (Hi-59412). MOUNTED CLIPPINGS: Clute, Amer. Bot. 31: 29. 1925 (Up).

CALLICARPA AMPLA Schau.

Synonymy: Callicarpa ampla Schau. ex Moldenke in Fedde, Repert. Spec. Nov. 42: 242, sphalm. 1937.

Bibliography: Schau. in A. DC., Prodr. 11: 642. 1847; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 386. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 166. 1895; Urb. in Fedde, Repert. Spec. Nov. 18: 119. 1922; Britton & P. Wils., Scient. Surv. Porto Rico 6 (1): 147. 1925; Moldenke in Fedde, Repert. Spec. Nov. 39: 296 & 302 (1936), 40: 48-49, 77, 83, 120, 122, 123, 125, 128, 129, & 131 (1936), and 42: 242. 1937; Moldenke, Phytologia 1: 234. 1937; Moldenke, Alph. List Common Vern. Names 7. 1939; Moldenke, Geogr. Distrib. Avicenn. 7 & 8. 1939; Moldenke, Suppl. List Common Vern. Names 5. 1940; Moldenke, Phytologia 1: 497. 1941; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 27 & 86. 1942; Moldenke, Phytologia 2: 43, 69, & 93. 1945; Moldenke, Alph. List Cit. 1: 33, 34, 117, 179, & 301 (1946), 2: 347, 403, 420, 436, 528, 554, & 640 (1948), 3: 695, 822, 853, 854, 856, 916, 937, 938, & 958 (1949), and 4: 1026, 1058, & 1147. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 49, 50, & 176. 1949; Moldenke, Résumé 58, 59, 250, & 443. 1959.

Recent collectors describe this plant as a small tree, 15 feet tall, the trunk 3 inches in diameter at breast height, with the fruits "whitish with a tinge of purple, possibly not fully mature". It has been collected in woods, fruiting in September. A vernacular name is "capa rosa". Jackson (1893) ascribes the species to Jamaica in error. Urban (1922) compares C. oblanceolata Urb. with C. ampla as follows: "Ex antillanis maxime accedit ad C. amplam Schauer (e Portorico), quae foliis ovatis v. ellipticis, margine supero crenatis v. crenulatis, subtus prominenti-reticulatis, multo tenuioribus, fructibus minoribus facile discernenda est."

Material has been misidentified and distributed in herbaria under the name Egiphylia macrophylla H.B.K.

In all, 60 herbarium specimens, including type material of all the names involved, and 21 mounted photographs have been examined

by me.

Additional & emended citations: PUERTO RICO: Baudin 208 [Herb. Jussieu 5071] (P); Eggers 1297 (W--1323254); Holdridge 245 (N); Ledru 148 (P), s.n. [Herb. Jussieu 5071] (P); Sintenis 2066 (W--1323265), 2165 (Lu, Mu--3839, W--1323264), 4530 (Bg, Lu, W--403410), 4583 (E--119132, F--79945, Lu, Mu--3768, Vu); Wydler 283 [Macbride photos 33930] (B--photo of isotype, Dc--type, Dc--isotype, F--969769--photo of isotype, Kr--photo of isotype, Mi--photo of isotype, N--photo of type, N--photo of isotype, S--photo of type, S--photo of isotype, Z--photo of type). VIRGIN ISLANDS: St. Thomas: Riédle 42 (P), s.n. (P). LOCALITY OF COLLECTION UNDETERMINED: Baudin s.n. (P); Plée s.n. (P, P); Riédle s.n. (P).

CALLICARPA ANGUSTA Schau. in A. DC., Prodr. 11: 642. 1847.

Synonymy: *Callicarpa angusta* var. typica H. J. Lam, Verbenac. Malay. Arch. 66. 1919. *Callicarpa acuta* Schau. ex P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 509 & 512, in obs. 1932. *Callicarpa acuta* var. typica H. J. Lam ex P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 509 & 512, in obs. 1932.

Bibliography: Schau. in A. DC., Prodr. 11: 642. 1847; Miq., Fl. Ind. Bat. 2: 889. 1856; Vidal, Revis. Pl. Vasc. Filip. 208. 1886; Maxim., Bull. Acad. Sci. St.-Petersb. [Mél. Biol.] 12: 506. 1886; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 386. 1893; E. D. Merr., Philip. Bur. Forest. Bull. 1: 51. 1903; King & Gamble, Journ. Roy. Asiat. Soc. Bengal 74 (2), extra no., 805. 1908; King & Gamble, Mat. Fl. Malay. Penins. 21: 1015. 1909; E. D. Merr., Philip. Journ. Sci. Bot. 7: 341 (1912) and 12: 299 & 301. 1917; H. J. Lam, Verbenac. Malay. Arch. 48, 58, 66, & 67. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 10 & 19. 1921; E. D. Merr., Enum. Philip. Pl. 3: 382. 1923; P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 509 & 512. 1932; Moldenke, Alph. List Common Vern. Names 10. 1939; Moldenke, Prelim. Alph. List Invalid Names 9. 1940; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 61 & 86. 1942; Moldenke, Alph. List Invalid Names 8. 1942; Moldenke, Phytologia 2: 93. 1945; Moldenke, Alph. List Cit. 1: 5 (1946) and 2: 463 & 470. 1948; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 140 & 176. 1949; Moldenke, Résumé 182, 241, & 443. 1959; Moldenke, Phytologia 13: 438 & 439. 1966; Moldenke, Résumé Suppl. 14: 5. 1966.

Shrub, about 2 m. tall; stems about 4 cm. in diameter; branchlets white stellate-tomentose; leaves decussate-opposite; petioles 4--18 mm. long, with only little developed interpetiolar margin, white stellate-tomentose; leaf-blades membranous, lanceolate, 7.5--18 cm. long, 1.7--4 cm. wide, attenuate or acuminate at the apex, minutely denticulate or serrate-denticulate along the margins, attenuate to acuminate or cuneate at the base, green and pulverulent or somewhat farinose above (when immature?, perhaps glabrous when mature?), stellate-tomentose and reticulate-venose beneath; inflorescence cymose, lax, divaricate-dichotomous, white stellate-tomentose, scarcely many-flowered; peduncles as long as or almost as long as the petioles; flowers small; calyx 2 mm. long, the rim

obscurely 4-toothed or very minutely 4-mucronulate; corolla white, twice as long as the calyx, 4 mm. long, tomentose-hairy on the outside; stamens and style long-exserted; mature fruit white, less than 2 mm. in diameter, not depressed at the apex, with scattered stellate hairs.

The type of this species was collected by Hugh Cuming (no. 1425) near Albay, in central Luzon, Philippine Islands, and was originally deposited in the August Friedrich Theodor Lucae herbarium in Berlin. The species has been found growing in secondary forests, on dry soil, in open forests, and along streams and damp forest streams, at altitudes of 1000 to 2000 feet, flowering in February and October, fruiting in February, March, and October. The flowers are described as "white" on Herb. Philip. Bur. Sci. 46685, while it is the fruits that are said to be white on Herb. Philip. Bur. Sci. 46741 & 46829. A vernacular name recorded for the species is "dirik-dirik".

Maximowicz (1886) compares his C. pilosissima with C. angusta as follows: "Similis Callicarpa angustae Schauer (Cuming! n. 1425) e Philippinis, quae tamen differt pube, foliis subtus incanis basi cuneatis, corolla extus tomentosa; nec non Callicarpa caudatae m., cujus diagnosim inserere liceat...."

Lam (1919) cites a "Com. d. l. Fl. for. d. Fil. no. 425" from Luzon as the typical form of C. angusta. By this curious citation he probably means Cuming 1425, the type collection. His var. longifolia, said to differ in its larger leaves, 9--18 cm. long, 1.7--4 cm. wide, the petioles 8--18 mm. long, and the venation abundant but obscure on both leaf-surfaces, is C. rivularis Merr. He also cites under C. blancoi Rolfe [= C. formosana Rolfe], with a question, a Teijsmann s.n. [Herb. Lugd.-Bat. 908.265-307] determined as C. angusta by Hasskarl.

Material of C. angusta has been misidentified and distributed in herbaria under the names C. bicolor Juss., C. cana L., and C. longifolia Lam. On the other hand, the Loher 12589, distributed as C. angusta, is actually C. longipetiolata var. glabrescens Moldenke; Loher 12312 and Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 48530] are C. subintegra Merr.; and Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 33838] is Geunsia ramosi Moldenke.

In all, 23 herbarium specimens, including type material of all the names involved, and 1 mounted photograph, have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Luzon: Ahern's collector s.n. [Herb. Philip. Forest. Bur. 1888] (Bz--17247, N, Po--64811); Cuming 1425 (N--isotype, Z--photo of isotype); M. Ramos 1958 (Bz--17273), s.n. [Herb. Philip. Bur. Sci. 1030] (Bz--17248, N); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 26367] (Bz--17250), s.n. [Herb. Philip. Bur. Sci. 34051] (N), s.n. [Herb. Philip. Bur. Sci. 46685] (Ca--309226, N), s.n. [Herb. Philip. Bur.

Sci. 46741] (Ca--309183, N), s.n. [Herb. Philip. Bur. Sci. 46829] (Ca--309331). Mindoro: Merritt s.n. [Herb. Philip. Forest. Bur. 8788] (N); M. Ramos s.n. [Herb. Philip. Bur. Sci. 39455] (Bz--17249, N), s.n. [Herb. Philip. Bur. Sci. 39497] (Bz--17245, Bz--17246). Palawan: Foxworthy s.n. [Herb. Philip. Bur. Sci. 660] (Bz--17595, N), s.n. [Herb. Philip. Bur. Sci. 719] (Bz--17594, N).

CALLICARPA ANGUSTIFOLIA King & Gamble, Kew Bull. Misc. Inf. 1908: 106. 1908.

Bibliography: King & Gamble, Journ. Roy. Asiat. Soc. Bengal 74 (2), extra no., 802 & 804--805. 1908; King & Gamble, Kew Bull. Misc. Inf. 1908: 106. 1908; King & Gamble, Mat. Fl. Malay. Penins. 21: 1014--1015. 1909; Prain, Ind. Kew. Suppl. 4: 34. 1913; H. J. Lam, Verbenac. Malay. Arch. 48 & 66--67. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 10 & 19. 1921; H. N. Ridl., Fl. Mal. Penins. 2: 614 & 616. 1923; Calder, Narayanaswami, & Ramaswami, Rec. Bot. Surv. Ind. 11: 24. 1926; P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 502, 503, 511, & 512. 1932; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 59, 60, 63, 66, & 86 (1942) and ed. 2, 137, 138, 143, 147, & 176. 1949; Moldenke, Phytologia 3: 296 (1950) and 4: 122 & 123. 1952; Moldenke, Résumé 177, 179, 187, 196, & 443. 1959.

Low, slender, twiggy shrub, to 4 m. tall; branchlets obtusely or obscurely quadrangular, grayish or ferruginous with an appressed tomentum of stellate hairs; leaves decussate-opposite, their bases joined by a well-marked ridge; petioles 1.25--2.5 cm. long, canaliculate, connected by a prominent interpetiolar margin; leaf-blades subcoriaceous, lanceolate or narrow-lanceolate, 10--18 cm. long, 2--4 cm. wide, slightly recurved, long-acuminate at both ends or acutely attenuate at the apex and decurrent into the petiole at the base, entire or rarely very obscurely denticulate, dark above, appressed grayish- or ferruginous-tomentose with stellate hairs above when immature, glabrous above when mature, permanently densely stellate-tomentose beneath with grayish-white, silvery, or tawny pubescence; midrib stout, impressed above, prominent beneath; secondaries slender, 9--15 per side, elevated, more or less irregular, issuing at 60--70° from the midrib and at once curving upwards to and along the margins, joined by subparallel transverse tertiaries; inflorescence axillary, cymose; cymes sessile or short-pedunculate, 1.2--2 cm. long, few-flowered, 2 cm. wide, widely dichotomous; peduncles 6--8 mm. long; bractlets linear-subulate; pedicels very short, jointed; flowers rather large; calyx campanulate, 2 mm. long, densely stellate-tomentose on the outer surface, glabrous within, the rim very short-mucronulate; corolla violet or violet-pink to bluish-pink, bluish-red, or white, twice as long as the calyx, densely stellate-tomentose on the outer surface, glabrous within, its tube 4 mm. long, stellate-pubescent outside, the lobes erect, rounded; stamens inserted at or very near the base of the corolla-tube, hardly exerted; filaments 4 mm. long, slender, scarcely or not at all exerted; anthers oblong, 1.5 mm. long, much glandular-dotted on

both sides; style slender, exserted; stigma capitate; ovary vil-
lous; fruit drupaceous, globose, 2.5--3.5 mm. in diameter, de-
pressed at the apex, black or dark-blue when ripe, glabrous; py-
renes 4.

This species was based on a collection of Henry Nicholas Rid-
ley (no. 8330) from Lankawi Island, one of Charles Curtis (no.
3197) from Ipoh, Perak, one of Benedetto Scortechini (no. 1596)
from Batu Kuran, Perak, and two made by Ulu Buboug (King's collec-
tor nos. 7036 & 8236) from the top of limestone hills, at 200--300
meters altitude, in Perak, Malaya. Ridley (1923) cites a Ridley
specimen from Selangor and a Curtis collection from Lankawi Island.

The species has been found growing on limestone, limestone
rocks, limestone cliffs, and the cleared tops of limestone hills,
at 500 to 1300 feet altitude, flowering in October and November,
and fruiting in February. The flowers are described as "violet"
on Bunnemeijer 1906 and as "white" on Gusdorf 96. The leaves on
Nur 34369 are especially small. King & Gamble (1908) note that
"The Kedah specimens [by which they mean those from Lankawi Is-
land] have narrower leaves than the rest, with more slender
branchlets. The species comes near to C. angusta, Schauer, from
the Philippines, but differs in the almost quite entire leaves
and larger flowers and fruit." Lam (1919) says "The species has
close affinity with C. angusta var. β [= C. rivularis Merr.] and
perhaps it will appear that it is synonymous with it. But it
seems to differ from it by the pubescent corolla and the hardly
denticulate leaves."

In all, 21 herbarium specimens have been examined by me.

Citations: THAILAND: Khantchai 1087 [Herb. Roy. Forest Dept.
24217] (Z). MALAYA: Kelantan: M. R. Henderson 19597 (Bz--17260,
Ca--342713); Nur & Foxworthy 12114 (Bz--17259, Ca--346272). Pa-
hang: M. R. Henderson 22265 (Bz--17258, N), 25049 (N). Perak: M.
R. Henderson 23754 (Bz--17261), 23805 (N). Selangor: Nur 34369
(Ca--3100, S). MALAYAN ISLANDS: Langkawi: M. R. Henderson 29152
(Bz--17257). INDONESIA: GREATER SUNDA ISLANDS: Banka: Bunnemeijer
1906 (Bz--17252, Bz--17253); Teijsmann s.n. (Bz--17254, Bz--17255,
Bz--17256, Ca--265958, Ut--53171).

CALLICARPA ANOMALA Ridl.

Bibliography: Moldenke, Known Geogr. Distrib. Verbenac., ed. 1,
65 & 86 (1942) and ed. 2, 145 & 176. 1949; Moldenke, Résumé 192 &
443. 1959.

It does not seem that this binomial was ever validly published
with a description of any sort. This species is said to be endem-
ic to Sarawak, but whatever the original source of this information
was when I published it in 1942 has since been lost.

CALLICARPA ARBOREA Roxb., Hort. Beng. [10], hyponym. 1814; Fl. Ind.,
ed. 1 [Carey & Wall.], 1: 405--406. 1820 [not C. arborea Merr.,
1940, nor Miq., 1885, nor Wall., 1829].

Additional & emended synonymy: Callicarpa villosa Roxb., Hort. Beng. [10], hyponym. 1814 [not C. villosa Baldw., 1936, nor Vahl, 1794]. Callicarpa tectonaefolia Wall., Numer. List 50, no. 1827. 1829. Callicarpa arborea var. villosa (Roxb.) King & Gamble, Journ. Asiat. Soc. Bengal 74 (2), extra no., 803 [as "var. villosa Roxb.]. 1908. Callicarpa lanata Hosséus apud Craib, Contrib. Fl. Siam Dicot. 163, in syn. 1912 [not C. lanata Gamble, 1878, nor L., 1771, nor H. J. Lam, 1940, nor Lam., 1821, nor Schau., 1893, nor Vahl, 1856, nor Wall., 1940, nor Zipp., 1841]. Callicarpa arborea var. villosa King & Gamble ex Craib, Contrib. Fl. Siam Dicot. 163. 1912. Callicarpa tectoniolia Wall. ex Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 21, sphalm. 1921. Callicarpa arborea var. villosa Gamble ex H. N. Ridl., Fl. Malay. Penins. 2: 615. 1923. Callicarpa tomentosa Bakh. (in part) apud P'ei, Verbenac. China 21, in syn. 1932 [not C. tomentosa Hook. & Arn., 1918, nor König, 1893, nor L., 1959, nor (L.) Murr., 1774, nor Lam., 1783, nor Murr., 1774, nor Thunb., 1959, nor Vahl, 1794, nor Willd., 1808]. Callicarpa arborea var. villosa Fletcher ex Moldenke, Résumé Suppl. 14: 6, in syn. 1966. Callicarpa tomentosa f. arborea (Roxb.) Bakh. ex Moldenke, Résumé Suppl. 14: 7, in syn. 1966. Callicarpa tomentosa f. villosa (Roxb.) Clarke ex Moldenke, Résumé Suppl. 14: 7, in syn. 1966. Callicarpa tomentosa var. arborea (Roxb.) Bakh. ex Moldenke, Résumé Suppl. 14: 7, in syn. 1966. Callicarpa tomentosa f. villosa (Roxb.) King & Gamble ex Moldenke, Résumé Suppl. 14: 7, in syn. 1966.

Bibliography: Murr. in L., Syst. Veg., ed. 13, 130. 1774; Roxb., Hort. Beng. [10]. 1814; Wall. in Roxb., Fl. Ind., ed. 1 [Carey & Wall.], 1: 405--406. 1820; Spreng. in L., Syst. Veg., ed. 16, 1: 421 (1825) and 5: 126. 1828; Wall., Numer. List 50, no. 1827. 1829; Roxb., Fl. Ind., ed. 2 [Carey], 1: 390--391. 1832; D. Dietr., Syn. Pl. 1: 429. 1839; Jacques & Hérincq, Man. Gén. Pl. Arb. & Arbust. 3: 502. 1845--1862; Schau. in A. DC., Prodr. 11: 641. 1847; F. Mason, Burmah, ed. 2, 792. 1860; Miq., Fl. Ind. Bat. Suppl. 1: 243 & 569. 1860; Bocq., Adansonia 3 [Rev. Verbenac.] 192. 1863; Roxb., Fl. Ind., ed. 3 [C. B. Clarke], 131. 1874; Brandis, For. Fl. NW. & Cent. India 3: 368. 1874; Kurz, Prelim. Rep. For. & Veg. Pegu, app. A: xcvi & app. B: 71. 1875; Kurz, For. Fl. Brit. Burma 2: 274. 1877; Gamble, Man. Ind. Timb. 282. 1881; E. T. Atkinson, Statist. Acct. NW. Prov. 10: 730. 1882; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 567. 1885; E. Balf., Cyclop. Ind., ed. 3, 1: 550. 1885; Campbell & Watt, Descrip. Cat. Econom. Prod. Chutia Nagpur 65. 1886; Watt, Dict. Econom. Prod. Ind. 2: 26. 1889; G. W. Johnson, Gard. Dict. 157. 1890; Coll. & Hemsl., Journ. Linn. Soc. Bot. 28: 109. 1891; Kuntze, Rev. Gen. Pl. 2: 503. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 386. 1893; Duthie, Rec. Bot. Surv. Ind. 1: 83. 1893; Pottinger & Prain, Rec. Bot. Surv. Ind. 1: 258 & 297. 1898; Koord. & Valet., Bijdr. Kenn. Booms. Java 7: 175. 1900; J. J. Wood, Rec. Bot. Surv. Ind. 2: 20. 1902; E. D. Merr., Philip. Bur. Forest.

Bull. 1: 51. 1903; Prain, Beng. Pl. 827. 1903; Strachey, Cat. Pl. Kumaon 136. 1906; King & Gamble, Journ. Roy. Asiat. Soc. Bengal 74 (2), extra no., 802 & 803. 1908; King & Gamble, Kew Bull. Misc. Inf. 1908: 106. 1908; King & Gamble, Mat. Fl. Malay. Penins. 21: 802. 1909; Elm., Leaflet. Philip. Bot. 3: 866. 1910; Hosséus, Beih. Bot. Centralbl. 28 (2): 429. 1911; Craib, Kew Bull. Misc. Inf. 9: 442. 1911; Craib, Contrib. Fl. Siam Dicot. 163. 1912; E. D. Merr., Philip. Journ. Sci. Bot. 12: 298. 1917; Heyne, Nutt. Plant. Nederl. Ind. 4: 107. 1917; Basu, Ind. Medic. Pl. 3: 3, pl. 732a. 1918; H. J. Lam, Verbenac. Malay. Arch. 80 & 82. 1919; H. N. Ridl., Journ. Fed. Malay States Mus. 10: 110. 1920; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 21 & 30. 1921; H. N. Ridl., Fl. Malay Penins. 2: 614—615, fig. 128. 1923; H. N. Ridl., Journ. Malay. Br. Roy. Asiat. Soc. 1: [Mal. For. Trees] 84. 1923; H. H. Chung, Mem. Sci. Soc. China 1: 225—226. 1924; Gamble, Fl. Presid. Madras 1091 & 1092. 1924; S. Moore, Journ. Bot. Lond. 63, Suppl. 80. 1925; Stapf, Ind. Lond. 1: 525. 1929; P'ei, Sinensia 2 (4): 65—66. 1931; P'ei, Verbenac. China 14 & 21—22. 1932; P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 500, 503—504, 511, & 512. 1932; Moldenke in Fedde, Repert. Spec. Nov. 39: 302 (1936) and 40: 98, 106, 112—113, 120, 122, 124, & 130. 1936; A. W. Hill, Ind. Kew. Suppl. 9: 45. 1938; Moldenke, Geogr. Distrib. Avicenn. 35. 1939; Moldenke, Suppl. List Common Vern. Names 4—8, 11, 12, 14, 18, 20, 21, & 23. 1940; Moldenke, Prelim. Alph. List Invalid Names 9, 11, & 13. 1940; Biswas, Ind. Forest Rec. Bot., new ser., 3: 41. 1941; Worsdell, Ind. Lond. Suppl. 1: 160. 1941; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 54—56, 58—61, 63, 67, 70, & 86. 1942; Moldenke, Alph. List Invalid Names 8, 9, & 11. 1942; Moldenke, Phytologia 2: 93. 1945; Razi, Journ. Mysore Univ. 7 (4): 63. 1946; Moldenke, Alph. List Cit. 1: 71, 94, 100, 247, 255, & 265 (1946) and 2: 359, 432, 434, & 470. 1948; Neal, In Gard. Hawaii, ed. 1, 640. 1948; Moldenke, Alph. List Cit. 3: 762 (1949) and 4: 1102, 1103, & 1110. 1949; Moldenke, Phytologia 3: 138 & 139. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 124, 125, 128, 130, 135, 137—140, 143, 148, 156, & 176. 1949; Moldenke, Revist. Sudam. Bot. 8: 171. 1950; Moldenke, Phytologia 4: 121—125 (1952) and 4: 268. 1953; Moldenke, Résumé 158, 160, 165, 167, 175, 177, 179, 182, 187, 189, 200, 213, 241, 244, & 247. 1959; Nath, Bot. Surv. So. Shan States 144. 1960; Nair & Rehman, Bull. Nat. Bot. Gard. Lucknow 76: 13 & 23, pl. 2, fig. 8. 1962; Moldenke, Résumé Suppl. 3: 30 (1962) and 4: 7. 1962; Legris, Trav. Sect. Scient. Inst. Franç. Pond. 6: 213, 501, 513, & 558. 1963; Moldenke, Dansk Bot. Arkiv 23: 87. 1963; Bhatnagar, Journ. Ind. Bot. Soc. 42: 374. 1963; Neal, In Gard. Hawaii, ed. 2, 727. 1965; Moldenke, Résumé Suppl. 14: 3, 4, 6, & 7. 1966.

Illustrations: Basu, Ind. Medic. Pl. 3: pl. 732a. 1918; H. N. Ridl., Fl. Malay Penins. 2: 615, fig. 128. 1923; Nair & Rehman, Bull. Nat. Bot. Gard. Lucknow 76: pl. 2, fig. 8. 1962.

Bush, 2—5 m. tall, or small to medium or even tall, slender or stout, branched, deciduous tree, to 25 m. tall, usually moderate-sized and spreading, all the younger parts shortly grayish or yel-

lowish mealy-tomentose; trunk stout, nearly erect, to 46 cm. in diameter at breast height and 85 cm. in girth, the bole 2 m. tall; wood light in weight, rather soft or moderately hard, white or gray to light brownish-white, light-brown, or straw-brown, loose- or even-grained, taking a beautiful polish, the annual rings visible; head round; bark gray or grayish to pale gray-brown or brownish, smooth or rough, longitudinally fissured, tawny-gray on shoots, the inner bark pale-brown; branches stout, spreading or long-straggling, mealy-tomentose; branchlets thick or stout, obtusely tetragonal, densely cinereous- or flavescent-furfuraceous or covered with dense gray-tawny or reddish-brown forked stellate or mealy tomentum on the younger parts, less so in age; nodes annulate; principal internodes 3.5--5.8 cm. long; leaf-scars sunken; leaves decussate-opposite; petioles stout or very stout, 2--7 cm. long, canaliculate above, many-furrowed in drying, densely cinereous-furfuraceous or mealy-tomentose; leaf-blades chartaceous or coriaceous, firm, light- or dark-green and shiny above, white beneath, ovate, broadly elliptic, or elliptic-ovate to oblong, oblong-ovate, or elliptic-lanceolate, ventricose, 11--34 cm. long, 5--14.3 cm. wide, conspicuously and equally tapering toward both ends or acuminate or caudate-acuminate to short-acuminate or bluntish-acuminate at the apex, entire or sometimes distantly denticulate, abruptly acute to long-acute or cuneate at the base or even centrally decurrent-acute in a rounded or subcordate base, smooth and glabrous or glabrescent (except for the midrib) above when mature, very densely furfuraceous-tomentellous, glaucous-tawny, gray-tomentose, or closely stellate-tomentose beneath with very short, white, closely appressed tomentum, very mealy-tomentose like the branchlets on both surfaces when immature and unexpanded; midrib stout or very stout, flat above, very prominent beneath; secondaries slender or stout, 7--14 per side, issuing at an angle of about 55° from the midrib and gently arcuate-ascending to the margins, where they almost anastomose above and are arcuately joined beneath, flat but plainly visible above, prominent or prominent beneath, joined by fairly regular and prominent transverse tertiaries; vein and veinlet reticulation slender, abundant, flat but usually quite visible above, prominent beneath; inflorescence axillary or supra-axillary, large, solitary or paired and opposite at the tips of the branchlets, 6--15 cm. long, 4--14.5 cm. wide, compound, subglobular, conspicuously 6--8 times dichotomously branched with wide-spreading branches, mealy-tomentose like the branchlets, all the ramifications somewhat tetragonal; cymes very many-flowered; peduncles stout, 2.5--7.5 cm. long when mature, densely furfuraceous like the branchlets and the divisions of the inflorescence; bracts none; bractlets numerous, linear or linear-subulate, 2--25 mm. long, furfuraceous; prophylla linear, small or minute, furfuraceous; flowers small, very numerous, almost sessile, sweet- or rather offensive-scented; pedicels very short; buds lilac, puberulent at first on the outside, later glabrous; calyx campanulate or infundibular, pale-green, 1--2.2 mm. long, 1.5--2 mm. wide, mealy or rather densely pulverulent-puberulent on the outside,

glabrous on the inner surface, the rim truncate and obscurely 4-repand-denticulate or obscurely and minutely 4-toothed; corolla infundibular, small, varying from blue, light-blue, mauve, or lilac to deep-lilac, lilac-purple, purple, pale-purple, lively purple, or rose-purple, sometimes violet, pale-violet, red, dull-red, pink, pale pinkish, rose-pink, old-rose, rose-lavender, or even "yellow", exserted, its tube usually much longer than the calyx, narrow-cylindric, 1.5--3 mm. long, slightly widened at the apex, puberulent or very minutely pulverulent-puberulent on the outside, its limb 4-parted, the lobes rounded-lingulate, 1--1.5 mm. long and wide or as long as the tube, subquadrate, obtuse at the apex, reflexed, villous or pulverulent-puberulent on the outside, one smaller than the rest; stamens 4, inserted 0.5--0.7 mm. above the base of the corolla-tube, long-exserted; filaments slender, mauve, 3.5--4.5 mm. long or twice as long as the corolla, glabrous; anthers yellow, bright-yellow, or brown, short, oblong, about 1 mm. long and 0.5 mm. wide, opening by longitudinal slits, dorsifixed near the base, glandular-punctate on the back; pollen-grains 3-zonocolpate, rarely syncolpate, prolate, $43 \times 31 \mu$, with a range of $42--46 \times 28--32 \mu$, the colpi ends acute, the margin slightly wavy, the colpus 2--8 μ at the middle of the mesocolpium, becoming thinner toward the colpi ends, the apocolpium 7 μ in diameter, the exine 2.8 μ thick, the ectine almost as thick as the endine, pilate, more or less areolate, the columella clear and closely packed, most of the grains folding along the aperture; pistil exserted; style capillary, mauve, 4.5--5 mm. long, glabrous; stigma at first capitate or peltate, about 0.5 mm. wide, later broadly infundibular; ovary superior, globose, about 1 mm. long and wide, densely puberulent, 1-celled, polished; fruiting-calyx small and patelliform, glabrate; fruit drupaceous, small, round or subglobose to globular, succulent, green or greenish when young, later pinkish, magenta, magenta-purple, purple, violet, or lilac, ultimately ripening blackish, blue-black, purple-black, or black, 2--6 mm. long and wide, glabrous, smooth or wrinkled in drying; seeds 4 or less, convex on the outside, with 2 flat faces on the inner surface, rough, the interior integument hard like the shell of a nut; perisperm oval, soft, amygdaline; embryo straight, erect, nearly as long as the perisperm; cotyledons oblong; radicle oblong, as long as the cotyledons, inferior.

It is said that 9-year old trees of this species may have a trunk circumference of 33 inches 4 feet above the ground. Razi (1946) describes it as a microphanerophyte according to Raunkiaer's classification of life-forms and records it from Mysore. The flowers have been described as "pink" on Brass 528, Carr 11535, M. S. Clemens 10870, Khantchai 1080, and Tsang 23914; "rose-lavender" on Koelz 20534; "lilac" on Bunnemeijer 248; "dull-red" on Forrest 24684; "purple" on Chamruaengari 39, Chand 4452, Corner 37691, Kingdon-Ward 22196, Koelz 22718, Sindhiponse 45, and Yates 2651; "light-blue" on Asdat 2; "blue" on Yates 1078; "mauve" on Hoogland 3905; "rose-purple" on Koelz 30119; "violet" on Bunkird s.n.; "old-rose" on Koelz 25478; "lilac or rose-pink" on Haniff 249; and

"yellow" on Khantchai 350.

The species has been found growing in forests, marshy or deciduous forests, dipterocarp or mixed evergreen forests, riverine rainforests, open or open grassy places, the margins of mixed thickets, second growth, and dry situations, near plantations, at the base of limestone cliffs, in open woods, by streams, in thickets, and amongst scrub, from sea-level to 8000 feet altitude, flowering and fruiting from December to October. Roxburgh states that it "Flowers at various times through the year" at Chittagong. Tsang refers to it as "scattered shrubs, climber, 9 feet tall" in Kwangsi. Brass calls it "common in gully rainforest association" in Papua; Yates says "in open grassland to second growth forest" in Sumatra. Kingdon-Ward describes it as "very common in second growth at old cultivation" in Burma; Hoogland found it "along river at edge of degenerate rainforest on welldrained alluvial soil" in New Guinea. In Thailand it is said by Sindhivongse to be "common in deciduous forests" and by Khantchai as "scattered shrubs in deciduous and in mature forests on hills". In Kwangsi it is described by Ching as "a fairly common tree on cutover hillsides".

Watt (1889) says "Met with in Kumaon, Oudh, eastern Bengal, and Burma; chiefly in second-growth forests". He also reports that the bark is aromatic and bitter, and is applied in decoctions in the treatment of cutaneous diseases. He quotes a surgeon, W. Barren, who refers to it as "tonic, carminative". He notes that the wood polishes beautifully, but is not used by the natives except for making charcoal. Kurz (1877) calls it "Frequent in the upper mixed forests, entering the drier hill forests, of Martaban and Tenasserim; rather rare in Chittagong and Pegu; also Ava. Occurs also frequently in deserted hill toungyas up to 4,000 ft. elevation." Balfour (1885) calls it "a stout, tall tree of Nepal, Kamaon, Oudh, the Morung mountains, Goalpara, Chittagong, and Moulmein."

Moldenke (1963) reports that in Thailand it is found in deciduous mixed dipterocarp forests and in mixed evergreen forests at 100--500 meters altitude, and gives its general distribution as "India, Pakistan, Nepal, southern China, Indo-china, and Thailand to Malaya, the Philippines, Sumatra, Mantawi Islands, and New Guinea." I have, however, seen no material of the typical form of this species from the Philippines and feel now that all records previously published from the Philippines refer to var. psilocalyx (H. J. Lam) Moldenke.

Bhatnagar (1963) calls C. arborea a "rare evergreen tree" [most other writers refer to it as deciduous] in the Hollong Nahor (Dipterocarpus macrocarpus Vesque and Mesua ferrea L.) forests of Assam, in which there are 240 species in 59 families in the climatic formation occupying flat land and low broken hills with luxuriant vegetation. Ridley (1923) avers that it grows in "Woods in low country, not rare" in Malaya. He cites a Cantley collection from Negri Sembilan, a Wry collection from Perak, and a Curtis collection from Penang. He records it also from Kelantan.